



# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

DMS-DR-2245  
NASA CR-147,618  
VOLUME 1 OF 2

RESULTS OF AN INVESTIGATION TO DETERMINE  
LOCAL FLOW CHARACTERISTICS AT THE AIR DATA  
PROBE LOCATIONS USING AN 0.030-SCALE MODEL (45-0)  
OF THE SPACE SHUTTLE VEHICLE ORBITER CONFIGURATION  
140A/B (MODIFIED) IN THE NASA AMES RESEARCH CENTER  
UNITARY PLAN WIND TUNNEL (0A161, A, B, C)

SPACE SHUTTLE

AEROTHERMODYNAMIC DATA REPORT

*255-96-0009*  
*D170674 #32*

JOHNSON SPACE CENTER

HOUSTON, TEXAS

DATA MANAGEMENT services

SPACE DIVISION



CHRYSLER  
CORPORATION

September 1976

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140A/B (MODIFIED) IN THE NASA AMES RESEARCH CENTER  
UNITARY PLAN WIND TUNNEL (OA161, A, B, C)

by

M. E. Nichols  
Shuttle Aero Sciences  
Rockwell International Space Division

Prepared under NASA Contract Number NAS9-13247

by

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Chrysler Corporation Space Division  
New Orleans, La. 70189

for

Engineering Analysis Division

Johnson Space Center  
National Aeronautics and Space Administration  
Houston, Texas



WIND TUNNEL TEST SPECIFICS:

Test Number: 11-094, 97-094, 87-094  
NASA Series Number: 0A161 A,B,C  
Model Number 45-0  
Test Dates: March 6 through March 31, 1975  
Occupancy Hours: 212

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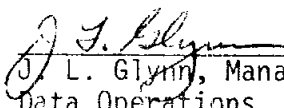
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140/B (MODIFIED) IN THE NASA AMES RESEARCH CENTER  
UNITARY PLAN WIND TUNNEL (OA161, A, B, C)

by

M. E. Nichols, Rockwell International Space Division

ABSTRACT

This report documents the results of wind tunnel test OA161 of a 0.030-scale model 45-0 of the Configuration 140A/B (Modified) Space Shuttle Vehicle Orbiter in the NASA Ames Research Center Unitary Plan Wind Tunnel facilities, conducted March 6, 1975 to March 31, 1975.

The purpose of this test was to determine local total and static pressure environments for the air data probe locations and relative effectiveness of alternate flight-test probe configurations. Testing was done in the Mach number range from 0.30 to 3.5. Angle of attack was varied from -8 to 25 degrees while sideslip varied between -8 and 8 degrees.

This report contains one volume of plotted data figures and a second volume of tabulated data.

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NOMENCLATURE  
General

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
a		speed of sound; m/sec, ft/sec
C <sub>p</sub>	CP	pressure coefficient; $(p_1 - p_\infty)/q$
M	MACH	Mach number; $V/a$
p		pressure; N/m <sup>2</sup> , psf
q	Q(NSM) Q(PSF)	dynamic pressure; $1/2\rho V^2$ , N/m <sup>2</sup> , psf
RN/L	RN/L	unit Reynolds number; per m, per ft
V		velocity; m/sec, ft/sec
$\alpha$	ALPHA	angle of attack, degrees
$\beta$	BETA	angle of sideslip, degrees
$\psi$	PSI	angle of yaw, degrees
$\phi$	PHI	angle of roll, degrees
$\rho$		mass density; kg/m <sup>3</sup> , slugs/ft <sup>3</sup>
<u>Reference &amp; C.G. Definitions</u>		
A <sub>b</sub>		base area; m <sup>2</sup> , ft <sup>2</sup>
b	BREF	wing span or reference span; m, ft
c.g.		center of gravity
$\frac{l}{c}$ <sub>REF</sub>	LREF	reference length or wing mean aerodynamic chord; m, ft
S	SREF	wing area or reference area; m <sup>2</sup> , ft <sup>2</sup>
	MRP	moment reference point
	XMRP	moment reference point on X axis
	YMRP	moment reference point on Y axis
	ZMRP	moment reference point on Z axis
<u>SUBSCRIPTS</u>		
b		base
l		local
s		static conditions
t		total conditions
$\infty$		free stream

# NOMENCLATURE (Continued)

## Body-Axis System

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
$C_N$	CN	normal-force coefficient; $\frac{\text{normal force}}{qS}$
$C_A$	CA	axial-force coefficient; $\frac{\text{axial force}}{qS}$
$C_Y$	CY	side-force coefficient; $\frac{\text{side force}}{qS}$
$C_{A_b}$	CAB	base-force coefficient; $\frac{\text{base force}}{qS}$ $-A_b(p_b - p_\infty)/qS$
$C_{A_f}$	CAF	forebody axial force coefficient, $C_A - C_{A_b}$
$C_m$	CLM	pitching-moment coefficient; $\frac{\text{pitching moment}}{qS l_{REF}}$
$C_n$	CYN	yawing-moment coefficient; $\frac{\text{yawing moment}}{qS b}$
$C_l$	CBL	rolling-moment coefficient; $\frac{\text{rolling moment}}{qS b}$

## Stability-Axis System

$C_L$	CL	lift coefficient; $\frac{\text{lift}}{qS}$
$C_D$	CD	drag coefficient; $\frac{\text{drag}}{qS}$
$C_{D_b}$	CDB	base-drag coefficient; $\frac{\text{base drag}}{qS}$
$C_{D_f}$	CDF	forebody drag coefficient; $C_D - C_{D_b}$
$C_Y$	CY	side-force coefficient; $\frac{\text{side force}}{qS}$
$C_m$	CLM	pitching-moment coefficient; $\frac{\text{pitching moment}}{qS l_{REF}}$
$C_n$	CLN	yawing-moment coefficient; $\frac{\text{yawing moment}}{qS b}$
$C_l$	CSL	rolling-moment coefficient; $\frac{\text{rolling moment}}{qS b}$
$L/D$	L/D	lift-to-drag ratio; $C_L/C_D$
$L/D_f$	L/DF	lift to forebody drag ratio; $C_L/C_{D_f}$

NOMENCLATURE  
Additions to Standard List

<u>Symbol</u>	<u>Plot Symbol</u>	<u>Definition</u>
$C_{p_i}$	CPI	pressure coefficient at tap i
$C_{p_{s_j}}$	CPSJ	static pressure coefficient at tap j, $(P_{s_j} - P_{s_\infty})/q_\infty$
$C_{p_{T_i}}$	CPTI	total pressure coefficient at tap i, $(P_{T_i} - P_{s_\infty})/q_\infty$
$M_{i_j}$	MIJ	local Mach number obtained using Raleigh-pitot equation with $(P_{s_j}/P_{T_i})$
$P_{s_j}$	PSJ	local static pressure at tap j, psfa
$P_{s_\infty}$	P	freestream static pressure, psfa
$P_{T_i}$	PTI	local total pressure at tap i, psfa
$P_{T_\infty}$	PT	freestream total pressure, psfa
$P_{T_i}/P_{T_\infty}$	PTI/PT	ratio of local to freestream total pressures at tap i
$P_{s_j}/P_{s_\infty}$	PSJ/P	ratio of local to freestream static pressures at tap j
$P_{T_i}/q_c$	PTI/QC	ratio of local total pressure increment from freestream static to freestream compressible dynamic pressure, $(P_{T_i} - P_{s_\infty})/q_c$
$q_\infty$	Q	freestream (as measured) dynamic pressure, psfa
$q_c$	QCOMP	freestream compressible dynamic pressure, psfa

$$P_{T_x} - P_{s_\infty}$$

where  $P_{T_x} = PT$  for  $M \leq 1.0$

$$P_{T_x} = P_{s_\infty} \left[ \frac{6}{5} M^2 \right]^{7/2} \left[ \frac{6}{7M^2 - 1} \right]^{5/2} \text{ for } M > 1.0$$

# NOMENCLATURE (Continued)

<u>Symbol</u>	<u>Plot Symbol</u>	<u>Definition</u>
$q_{ij}$	QIJ	local compressible dynamic pressure, $(P_{Ti} - P_{Sj})$ , psfa
$q_{ij}/q_c$	QIJ/QC	ratio of local to freestream compressible dynamic pressure
$(\Delta P_T/q)_{ij}$	DPTQIJ	local to freestream total pressure increment ratioed to local compressible dynamic pressure, $(P_{Ti} - P_{T\infty})/(P_{Ti} - P_{Sj})$ , total pressure decrement
$(\Delta P_S/q)_{ij}$	DPQIJ	local static pressure increment ratioed to local compressible dynamic pressure, $(P_{Sj} - P_{S\infty})/(P_{Ti} - P_{Sj})$ , static pressure decrement
$\delta_a$	AILRON	aileron deflection angle, degrees
$\delta_e$	ELEVON	elevon deflection angle, degrees
$\delta_F$	BDFLAP	bodyflap surface deflection angle, positive deflection trailing edge down, degrees

Note: All calculations for rakes on datasets requiring  $P_{Sj}$ ;  
 $P_{Sj}$  was taken from a rake off dataset.

## SUBSCRIPTS

i	I	local total pressure at the ith tap
j	J	local static pressure at the jth tap

## RAKES ON CONFIGURATION

J	Static Pressure Tap Locations	Model Station $X_0$
1	Fuselage Flush Left Side	8.100
2	Fuselage Flush Right Side	8.100
3	Fuselage Flush Left Side	12.900
4	Fuselage Flush Right Side	12.900

# NOMENCLATURE (Concluded)

## RAKES ON CONFIGURATION (Concluded)

I	Total Pressure Tap Locations	Model Station $X_0$
1	Left Rake Outboard	12.846
2	Left Rake Middle	12.873
3	Left Rake Inboard	12.900
4	Right Rake Inboard	12.900
5	Right Rake Middle	12.873
6	Right Rake Outboard	12.846

## PROBES ON CONFIGURATION

J	Static Pressure Locations	Model Station $X_0$
1 $\Rightarrow$ 4	Same as the rakes on Configuration	
5	Nose Pitot/Static Probe	0.809
6	Left Wing Pitot/Static Probe	35.025
I	Total Pressure Tap Locations	
6	Left Wing Pitot/Static Probe	35.025
7	Nose Pitot/Static Probe	0.809

Note: Left wing pitot/static probe was located along W L 9.160 and  
B L 14.050

## CONFIGURATIONS INVESTIGATED

The 0.030-scale 45-0 model employed in this test was a representation of the Configuration 140A/B (modified) Space Shuttle Vehicle Orbiter. It was instrumented for measurement of static and total pressures in the region of the proposed Air Data Subsystem probes on the Orbiter forebody, and was provided with alternate nose and left wing-tip flight test probe installations. A wing-off configuration was also tested with and without the total-pressure forebody rakes at transonic conditions. During certain runs, tufts were attached on the right-hand forebody region for flow-visualization studies. Elevon and aileron deflections were variable, while the rudder and speedbrake were maintained at 0 deg. settings and the body-flap at -7.17 deg. See Table II.

Model nomenclature used for this test was as follows:

where: Orb =  $B_{26} C_9 E_{43} F_8 M_{16} N_{24} R_5 V_8 W_{116} N_{28}$

### Component

$B_{26}$	Orbiter fuselage per Rockwell International lines: VL70000140A/B (model drawing SS-A01360)
$C_9$	Orbiter canopy per Rockwell International lines: VL70000140A/B (model drawing SS-A01360)
$E_{43}$	Orbiter full-span, unswept-hingeline 6"-gapped elevons per Rockwell International lines: VL70-000200 (model drawings SS-A1360)
$F_8$	Orbiter body flap per Rockwell International lines: VL70000200 (model drawing SS-A1360)
$M_{16}$	Orbiter OMS pods per Rockwell International lines: VL700002030A, VL70-008401 (model drawing SS-A1360)
$N_{24}$	Orbiter main propulsion system (MPS) nozzles: VL70000140A, VL70-005034 (model drawing SS-A01360)

# CONFIGURATIONS INVESTIGATED (Concluded)

- N<sub>28</sub> Orbiter OMS nozzles: VL70-000140A (model drawing SS-A01360)
- R<sub>5</sub> Orbiter rudder per Rockwell International lines: VL70000146A (model drawing SS-A01360)
- V<sub>8</sub> Orbiter vertical tail per Rockwell lines: VL70-000146A (model drawing SS-A01360)
- W<sub>116</sub> Orbiter wing per Rockwell International lines: VL70-000200 (model drawing SS-A01360)

See Table III for detailed information on model components.



## TEST FACILITY DESCRIPTION

The Ames 11 x 11-Foot Transonic Wind Tunnel is a variable density, closed return, continuous flow type. This tunnel has an adjustable nozzle (two flexible walls) and a slotted test section to permit transonic testing over a Mach number range continuously variable from 0.4 to 1.4.

The Ames 8 x 7-Foot Supersonic Wind Tunnel is a closed-return, variable-density tunnel with a 8- by 7-foot rectangular test section. The nozzle has flexible side walls with fixed upper and lower surfaces. Mach number range is continuously variable from 2.45 to 3.5. Tunnel stagnation pressure can be varied from 0.3 to 2.0 atmospheres and Reynolds number per foot varies from  $1.0 \times 10^6$  to  $5.0 \times 10^6$ .

The Ames 9 x 7-Foot Supersonic Wind Tunnel is a variable density, continuous flow type with an adjustable nozzle to permit supersonic testing over a Mach number range continuously variable from 1.5 to 2.5. The nozzle is of the asymmetric, sliding-block type in which the variation of the test section Mach number is achieved by translating, in the stream-wise direction, the fixed-contour block that forms the floor of the nozzle.

## DATA REDUCTION

Six-component balance data were reduced, using Ames standard data reduction techniques, to body-axis coefficient form. Angles of attack and sideslip were corrected for balance and sting deflections. Moments were reduced about the Orbiter moment reference center.

No base pressure corrections were applied to the data; however, two base pressure taps were monitored for future reference. Tufts and Schlieren photography were employed to determine local flow and shock-wave patterns, particularly in the transonic regime.

The following reference dimensions and constants were used to reduce the data to coefficient form.

### Reference Dimensions and Constants

<u>Symbol</u>	<u>Definition</u>	<u>Model Scale</u>	<u>Full Scale</u>
S	Wing reference area, ft <sup>2</sup>	2.421	2690.0
$\bar{c}$	Wing reference MAC, in	14.244	474.8
b	Wing reference span, in	28.100	936.68
MRP	Moment reference point		
	Fuselage station	32.300	1076.68
	Water plane	11.250	375

Probe data were reduced to provide local Mach number, various pressure ratios, and coefficients as defined in the nomenclature section. Mach numbers ( $M_{ij}$ ) were calculated using the Raleigh Pitot equation with the appropriate static ( $P_{sj}$ ) and total ( $P_{Ti}$ ) pressures. Calculations for data sets containing data obtained with the rake installed utilize  $P_{sj}$  from an equivalent data set containing data obtained without the rake installed.

## DISCUSSION OF DATA AND RESULTS

Force data were good in nearly all cases. A roll gauge failure between test segments B and C required recalibration measures in the reduction program, but no data were lost. Axial force data were possibly the least accurate during this test due to the interaction effects of the metric-to-nonmetric instrumentation leads running from the model to the supporting sting. However, axial-force corrections to the model angle-of-attack and/or angle-of-sideslip readings were considered insignificant.

Model fidelity to configuration lines was questioned as a result of asymmetrical pressure data in 0° sideslip cases with symmetrical deflection settings. Model dimensional checks will be carried out as necessary to determine compensations to test data.

## REFERENCE

SD75-SH-0052, "Pretest Information for Test OA161 A, B and C of the 0.030-Scale Model 45-0 Space Shuttle Orbiter in the Ames Research Center Unitary Plan Wind Tunnels for Determining Local Flow Characteristics at the Air Data Probe Location", By D. E. Thornton and M. E. Nichols, February 14, 1975.

TABLE I

TEST : QA161 A,B, C		DATE : March, 1975																									
TEST CONDITIONS																											
MACH NUMBER	REYNOLDS NUMBER (per unit length)	DYNAMIC PRESSURE (pounds/sq. inch)	STAGNATION TEMPERATURE (degrees Fahrenheit)																								
0.30	$4.25 \times 10^6/\text{ft}$	1.69	116																								
0.60		3.57																									
0.70		3.94																									
0.80		4.44																									
0.85		4.76																									
0.90		4.90																									
0.95		5.04																									
0.98		5.22																									
1.05		5.45																									
1.10		5.55																									
1.15		5.66																									
1.20		5.68																									
1.30		5.93																									
1.40	↓	6.10	↓																								
1.55	$3.00 \times 10^6/\text{ft}$	4.47	85																								
1.75	↓	4.62	↓																								
<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 30%;"> <p>BALANCE UTILIZED: <u>MK XX 2.5"</u></p> </div> <div style="width: 30%;"> <p>CAPACITY:</p> </div> <div style="width: 30%;"> <p>ACCURACY:</p> </div> <div style="width: 30%;"> <p>COEFFICIENT TOLERANCE:</p> </div> </div> <table style="width: 100%; margin-top: 10px;"> <tr> <td style="width: 10%;">NF</td> <td style="width: 40%;"><u>3000 lbs</u></td> <td style="width: 20%;"><u>                    </u></td> <td style="width: 30%;"><u>                    </u></td> </tr> <tr> <td>SF</td> <td><u>1500 lbs</u></td> <td><u>                    </u></td> <td><u>                    </u></td> </tr> <tr> <td>AF</td> <td><u>600 lbs</u></td> <td><u>                    </u></td> <td><u>                    </u></td> </tr> <tr> <td>PM</td> <td><u>27,000 in-lbs</u></td> <td><u>                    </u></td> <td><u>                    </u></td> </tr> <tr> <td>RM</td> <td><u>4000 in-lbs</u></td> <td><u>                    </u></td> <td><u>                    </u></td> </tr> <tr> <td>YM</td> <td><u>10,500 in-lbs</u></td> <td><u>                    </u></td> <td><u>                    </u></td> </tr> </table>				NF	<u>3000 lbs</u>	<u>                    </u>	<u>                    </u>	SF	<u>1500 lbs</u>	<u>                    </u>	<u>                    </u>	AF	<u>600 lbs</u>	<u>                    </u>	<u>                    </u>	PM	<u>27,000 in-lbs</u>	<u>                    </u>	<u>                    </u>	RM	<u>4000 in-lbs</u>	<u>                    </u>	<u>                    </u>	YM	<u>10,500 in-lbs</u>	<u>                    </u>	<u>                    </u>
NF	<u>3000 lbs</u>	<u>                    </u>	<u>                    </u>																								
SF	<u>1500 lbs</u>	<u>                    </u>	<u>                    </u>																								
AF	<u>600 lbs</u>	<u>                    </u>	<u>                    </u>																								
PM	<u>27,000 in-lbs</u>	<u>                    </u>	<u>                    </u>																								
RM	<u>4000 in-lbs</u>	<u>                    </u>	<u>                    </u>																								
YM	<u>10,500 in-lbs</u>	<u>                    </u>	<u>                    </u>																								
COMMENTS:																											

TABLE I. (Cont'd)

[illegible]

TABLE II.

TEST: 0A161 A,B,C										DATA SET/RUN NUMBER COLLATION SUMMARY										DATE: POST TEST									
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES				NO. OF RUNS	MACH NUMBERS (OR ALTERNATE INDEPENDENT VARIABLE)																				
		$\alpha$	$\beta$	$\delta F$	$\delta A$	$\delta B$	$\delta C$		0.3	0.56	0.6	0.7	0.8	0.85	0.9	0.95	0.98	1.05											
RET001	ORBITER-WING+RAKES	A	0	-	-	-6.5					2	3	4		5		6												
02	ORBITER-WING	N/C*	0	-	-	-6.5				282							283												
03	ORBITER+RAKES	C/B*	-5	0	0	-6.5																							
04		C	-2																										
05		C/B	0							21*					18*														
06		C/B*	2							22*					19*														
07		C/B*	5							23*					20*														
08	ORBITER+TUFTS	F	-5	0	0	-6.5				99		100	110	111	120	121	130												
09		F	-2							98		101	109	112	119	122	129												
10		G	0							97		102	108	113	118	123	128												
11		F	2							96		103	107	114	117	124	127												
12		F	5							95		104	106	115	116	125	126												
13	ORBITER	C	-5	0	0	-6.5				29	34	43	44	54	55	64	65												
14		C	-2							30	35	42	45	53	56	63	66												
15		C	0							31	36	41	46	52	57	62	67												
16		C/B*	2							32*	37	40	47	50	58	61	68												
17		C	5							28	38	39	48	49	59	60	69												

17576

6761554937312519137

BETA CL CD CLM CM CA CY CYN CBL L/D MACH ALPHA 1.0

COEFFICIENTS

$\alpha$  OR  $\beta$

SCHEDULES

X) A = 0, 4, 8, 12, 16, 20, 24

X) B = 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 0

X) F = 0, 4, 8, 10, 12, 14, 16, 20

X) G = 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 25

X) N = 0, 4, 8, 12, 16, 20, 24, 0

IDVAR (1) IDVAR (2) NDV

## DATA SETS

TABLE II.- Continued

TEST: 0A161 A,B,C			DATA SET/RUN NUMBER COLLATION SUMMARY										DATE: POST TEST					
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES				NO. OF RUNS	MACH NUMBERS ( OR ALTERNATE INDEPENDENT VARIABLE )									
		$\alpha$	$\beta$	$\delta E$	$\delta A$	$\delta B$			1.1	1.15	1.2	1.3	1.4	1.55	1.75	2.0	2.25	2.5
RET001	ORBITER-WING + RAKES	A	0	-	-	-6.5			7		8	9	10					
02	ORBITER-WING	N/C*	0	-	-	-6.5		284		285*								
03	ORBITER + RAKES	C/B*	-5	0	0	-6.5				17*				305	306	315	316	441
04		C	-2											304	307	314	317	442
05		C/B*	0							16*		12*		303	308	313	318	443
06		C/B*	2							15*		13*		302	309	312	319	444
07		C/B*	5							14		11		301	310	311	320	445
08	ORBITER + TUFTS	F	-5	0	0	-6.5		131	138	141	150	151						
09		F	-2					132	137	142	149	152						
10		G	0					133	136	143	148	153						
11		F	2					139	134	144	147	154						
12		F	5					140	135	145	146	155						
13	ORBITER	C	-5	0	0	-6.5		74	75	84	85	94	321	330	331	349	416	
14		C	-2					73	76	83	86	93	322	329	332	348	417	
15		C	0					72	77	82	87	92	323	328	333	347	418	
16		C/B*	2					71	78	81	88	91	324	327	334	346	419	
17		C	5					70	79	80	89	90	325	326	335	345	420	
1      7      13      19      25      31      37      43      49      55      61      67      75 76																		
BETA . PT . . . P . . . PS1/P . PS2/P . PS3/P . PS4/P . PS5/P . PS6/P . PS7/P . MACH . ALPHA . 1.0																		
COEFFICIENTS      IDVAR (1)      IDVAR (2)      NDV																		
$\alpha$ OR $\beta$		$\alpha$ ) A = 0, 4, 8, 12, 16, 20, 24										$\alpha$ ) F = 0, 4, 8, 10, 12, 14, 16, 26						
SCHEDULES		$\alpha$ ) B = 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 0										$\alpha$ ) G = 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 25						

TEST RUN NUMBERS



TABLE II. - Continued

TEST: 0A161 A, B, C		DATA SET/RUN NUMBER COLLATION SUMMARY						DATE: POST TEST									
DATA SET IDENTIFIER	CONFIGURATION	SCHD. PARAMETERS/VALUES					NO. OF RUNS	MACH NUMBERS (OR ALTERNATE INDEPENDENT VARIABLE)									
		$\alpha$	B	$\delta E$	$\delta A$	$\delta B$		3.0	3.5								
REF 001	ORBITER - WING + RAKES	A	0	-	-	-6.5											
02	ORBITER - WING	N/A	0	-	-	-6.5											
03	ORBITER + RAKES	C/B	-5	0	0	-6.5		440	431								
04		C	-7					439	432								
05		C/B	0					438	433								
06		C/B	2					437	434								
07		C/B	5					436	435								
08	ORBITER + TUFTS	F	-5	0	0	-6.5											
09		F	-2														
10		G	0														
11		F	2														
12		F	5														
13	ORBITER	C	-5	0	0	-6.5		425	426								
14		C	-2					424	427								
15		C	0					423	428								
16		C/B	2					422	429								
17		C	5					421	430								

22

TEST RUN NUMBERS

B  
DATA  
SETS

BETA PT. . . . . Q (PSE) PT. 1 / PT. 2 / PT. 3 / PT. 4 / PT. 5 / PT. 6 / PT. 7 / PT. MACH. . . . . ALPHA 1.0											
		COEFFICIENTS					IDVAR (1) IDVAR (2) NOV				
$\alpha$ OR $\beta$ SCHEDULES		X) A = 0, 4, 8, 12, 16, 20, 24					X) F = 0, 4, 8, 10, 12, 14, 16, 20				
		X) B = 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 0					X) G = 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 25				
		X) C = 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 25, 0					X) N = 0, 4, 8, 12, 16, 20, 24, 0				
		X) D = 0, 2, 4									



TABLE II. - Continued

TEST: 0A161 A, B, C

## DATA SET/RUN NUMBER COLLATION SUMMARY

DATE: POST TEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. PARAMETERS/VALUES					NO. OF RUNS	MACH NUMBERS (OR ALTERNATE INDEPENDENT VARIABLE)									
		$\alpha$	$\beta$	$\delta E$	$\delta A$	$\delta B$		1.1	1.15	1.2	1.3	1.4	1.55	1.75	2.0	2.25	2.5
REF 018	ORBITER	$\frac{H}{J}$	-5	0	2.5	-6.5				170*		171**					
19		$\frac{H}{J}$	-2							169*		172*					
20		$\frac{H}{J}$	0							168*		173*					
21		$\frac{H}{J}$	2							167*		174*					
22		$\frac{H}{J}$	5							166*		175*					
23		$\frac{H}{M}$	-5	0	5	-6.5		190		181		180					
24		$\frac{H}{M}$	-2					189		182		179					
25		$\frac{H}{M}$	0					188*		183		178**					
26		$\frac{H}{M}$	2					187		184		177					
27		$\frac{H}{M}$	5					186		185		176					
28		$\frac{H}{M}$	-5	0	7.5	-6.5				221		220					
29		$\frac{H}{M}$	-2							222		219					
30		J	0							223		218					
31		$\frac{H}{M}$	2							224		217					
32		$\frac{H}{M}$	5							225		216					

TEST RUN NUMBERS

TEST RUN NUMBERS

1 7 13 19 25 31 37 43 49 55 61 67 75 76

$\alpha$  OR  $\beta$   
SCHEDULES

$\alphaH = 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 25$

$\alphaI = 0, 4, 8, 10, 12, 14, 16, 20, 0$

$\alphaJ = 0, 4, 6, 8, 10, 12, 14, 16, 20, 24, 0$

COEFFICIENTS

$\alphaK = 0, 2, 4, 8, 10, 12, 14, 16, 20, 0$

$\alphaL = 0, 2, 4, 6, 8, 10, 12, 14, 16, 20, 24, 0$

$\alphaM = 0, 4, 6, 8, 10, 12, 14, 16, 20, 0$

IDVAR (1) IDVAR (2) NDV

TABLE II. - Continued

TEST: 0A161 A, B, C			DATA SET/RUN NUMBER COLLATION SUMMARY						DATE: POST TEST										
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES			NO. OF RUNS	MACH NUMBERS (OR ALTERNATE INDEPENDENT VARIABLE)											
		$\alpha$	$\beta$	SE	SA	SGF		3.0	3.5										
RET018	ORBITER	K*	-5	0	2.5	-6.5													
19		H	-2																
20		H	0																
21		H	2																
22		H	5																
23		I	-5	0	5	-6.5													
24		I	-2																
25		I	0																
26		I	2																
27		I	5																
28		I	-5	0	7.5	-6.5													
29		I	-2																
30		J	0																
31		I	2																
32		I	5																

17131925313743495561677576

COEFFICIENTS

$\alpha$  OR  $\beta$

SCHEDULES

$\alpha$  H = 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 25

$\alpha$  I = 0, 4, 8, 10, 12, 14, 16, 20, 0

IDVAR (1) IDVAR (2) NDV

$\alpha$  K = 0, 2, 4, 8, 10, 12, 14, 16, 20, 0

$\alpha$  L = 0, 2, 4, 6, 8, 10, 12, 14, 16, 20, 24, 0

TABLE II. - Continued

TEST: DA161A,B,C										DATA SET/RUN NUMBER COLLATION SUMMARY										DATE: POST 85	
DATA SET IDENTIFIER	CONFIGURATION	SCHD.	PARAMETERS/VALUES				NO. OF RUNS	MACH NUMBERS (OR ALTERNATE INDEPENDENT VARIABLE)													
			$\alpha$	$\beta$	$\delta E$	$\delta A$		$\delta \theta$	0.3	0.56	0.6	0.7	0.8	0.85	0.9	0.95	0.98	1.05			
RE7033	ORBITER	I	-5	0	10	-6.5				252						251		241			
34		I	-2							253						250		242			
35		J	0							254						249		243			
36		I	2							255						247		244			
37		I	5							256						246		245			
38	ORBITER + PROBES	C	-8	0	0	-6.5		263		264											
39		C	-5					262		265											
40		C	-2					261		266											
41		C	0					260		267											
42		C	2					259		271											
43		C	5					258		269											
44		C	8					257		270											
45		C	-5	15	0	-6.5		276		277											
46		C	-2		1			275		278											
47		C	0					274		279											
48		C	2					273		280											
49		C	5					272		281											

1

7

13

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73

79

COEFFICIENTS

X) C = 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 25, 0

X) I = 0, 4, 8, 10, 12, 14, 16, 20, 0

IDVAR (1)

X) J = 0, 4, 6, 8, 10, 12, 14, 16, 20, 24, 0

IDVAR (2)

NOV

TABLE II. - Continued

TEST: 0A161 A,B,C			DATA SET/RUN NUMBER COLLATION SUMMARY										DATE: POST TEST						
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES				NO. OF RUNS	MACH NUMBERS ( OR ALTERNATE INDEPENDENT VARIABLE )										
		$\alpha$	$\beta$	SE	SA	SAE			1.1	1.15	1.2	1.3	1.4	1.55	1.75	2.0	2.25	2.5	
RE7033	ORBITER	I	-5	0	10	-6.5			240			231		230					
34		I	-2						239			232		229					
35		J	0						238			233		228					
36		I	2						237			234		227					
37		I	5						236			235		226					
38	ORBITER + PROBES	C	-8	0	0	-6.5													
39		C	-5																
40		C	-2																
41		C	0																
42		C	2																
43		C	5																
44		C	8																
45		C	-5	15	0	-6.5													
46		C	-2																
47		C	0																
48		C	2																
49		C	5																

TABLE II. - Continued

TEST: OA 161 A,B,C		DATA SET/RUN NUMBER COLLATION SUMMARY						DATE: POST TEST												
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES			NO. OF RUNS	MACH NUMBERS (OR ALTERNATE INDEPENDENT VARIABLE)												
		$\alpha$	$\beta$	$\delta E$	$\delta A$	$\delta B$		3.0	3.5											
RE7033	ORBITER	I	-5	0	10	-6.5														
34		I	-2																	
35		J	0																	
36		I	2																	
37		I	5																	
38	ORBITER + PROBES	C	-8	0	0	-6.5														
39		C	-5																	
40		C	-2																	
41		C	0																	
42		C	2																	
43		C	5																	
44		C	8																	
45		C	-5	15	0	-6.5														
46		C	-2																	
47		C	0																	
48		C	2																	
49		C	5																	

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76

$\alpha$  OR  $\beta$

SCHEDULES

COEFFICIENTS

X) C = 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 25, 0

X) J = 0, 4, 8, 10, 12, 14, 16, 20, 0

IDVAR (1)

IDVAR (2)

NDV

X) J = 0, 4, 6, 8, 10, 12, 14, 16, 20, 24, 0

TABLE II. - Continued

TEST: DA161 A,B,C			DATA SET/RUN NUMBER COLLATION SUMMARY										DATE: POST TEST					
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES				NO. OF RUNS	MACH NUMBERS ( OR ALTERNATE INDEPENDENT VARIABLE )									
		$\alpha$	$\beta$	$\delta E$	$\delta A$	$\delta B$			0.3	0.56	0.6	0.7	0.8	0.85	0.9	0.95	0.98	1.05
RET050	ORBITER + RAKES	C	-5	0	0	-6.5												
51		C	-2															
52		C	0															
53		C	2															
54		C	5															
55	ORBITER	C/E	-5	0	0	-6.5			24		33*							
56		C	-2						25									
57		C	0						26									
58		C	2						27									
59		C/H	5												51			



TABLE II. - Continued

DATE : POST TEST

TEST: OA/61 A, B, C

## DATA SET/RUN NUMBER COLLATION SUMMARY

DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES				NO. OF RUNS	MACH NUMBERS (OR ALTERNATE INDEPENDENT VARIABLE)									
		$\alpha$	$\beta$	SE	SA	SSE			1.1	1.15	1.2	1.3	1.4	1.55	1.75	2.0	2.25	2.5
REF 050	ORBITER + RAKES	C	-5	0	0	-6.5												411
51		C	-2															412
52		C	0															413
53		C	2															414
54		C	5															415
55	ORBITER	C	-5	0	0	-6.5							337		340			
56		C	-2										338		341			
57		C	0												342			
58		C	2												343			
59		C/H*	5											339	344	336*		

TEST RUN NUMBER:

## COEFFICIENTS

IDVAR (1)	IDVAR (2)	NDV
1	1	1
2	2	1
3	3	1
4	4	1
5	5	1
6	6	1
7	7	1
8	8	1
9	9	1
10	10	1
11	11	1
12	12	1
13	13	1
14	14	1
15	15	1
16	16	1
17	17	1
18	18	1
19	19	1
20	20	1
21	21	1
22	22	1
23	23	1
24	24	1
25	25	1
26	26	1
27	27	1
28	28	1
29	29	1
30	30	1
31	31	1
32	32	1
33	33	1
34	34	1
35	35	1
36	36	1
37	37	1
38	38	1
39	39	1
40	40	1
41	41	1
42	42	1
43	43	1
44	44	1
45	45	1
46	46	1
47	47	1
48	48	1
49	49	1
50	50	1
51	51	1
52	52	1
53	53	1
54	54	1
55	55	1
56	56	1
57	57	1
58	58	1
59	59	1
60	60	1
61	61	1
62	62	1
63	63	1
64	64	1
65	65	1
66	66	1
67	67	1
68	68	1
69	69	1
70	70	1
71	71	1
72	72	1
73	73	1
74	74	1
75	75	1
76	76	1
77	77	1
78	78	1
79	79	1
80	80	1
81	81	1
82	82	1
83	83	1
84	84	1
85	85	1
86	86	1
87	87	1
88	88	1
89	89	1
90	90	1
91	91	1
92	92	1
93	93	1
94	94	1
95	95	1
96	96	1
97	97	1
98	98	1
99	99	1
100	100	1

$\alpha$  OR  $\beta$   
SCHEDULES

x)  $C = 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 25, 0$   
 x)  $E = 0, 2, 4, 6, 8, 10, 12$

$\alpha) H = 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 25$

TABLE II. - Concluded

TEST: DA161A,B,C		DATA SET/RUN NUMBER COLLATION SUMMARY						DATE: POST TEST									
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES			NO. OF RUNS	MACH NUMBERS (OR ALTERNATE INDEPENDENT VARIABLE)									
		A	B	SE	SA	SRE		3.0	3.5								
RET050	ORBITER TRAJECT	C	-5	0	0	-6.5		410	401								
51		C	-2					409	402								
52		C	0					408	403								
53		C	2					407	404								
54		C	5					406	405								
55	ORBITER	C	-5	0	0	-6.5											
56		C	-2														
57		C	0														
58		C	2														
59		C/H*	5														

1 7 13 19 25 31 37 43 49 55 61 67 75 76

α OR β SCHEDULES

COEFFICIENTS

α) C = 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 25, 0

β) E = 0, 2, 4, 6, 8, 10, 12

IDVAR (1) IDVAR (2) NDV

α) H = 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 25

TABLE III MODEL DIMENSIONAL DATA

MODEL COMPONENT : BODY - B26GENERAL DESCRIPTION : Configuration 140A/B Orbiter fuselage.NOTE: B<sub>26</sub> is identical to B<sub>24</sub> except underside of fuselage has been  
refaired to accept W<sub>116</sub>.MODEL SCALE: 0.030DRAWING NUMBER: VL70-000143B, -000200, -000205, -006089, -000145,  
VL70-000140A, -000140B

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length (OML: Fwd. Sta. $X_0=235$ ). In.	1293.3	38.799
Length (IML: Fwd. Sta. $X_0=238$ ). In.	1290.3	38.709
Max Width (@ $X_0 = 1528.3$ ). In.	264.0	7.920
Max Depth (@ $X_0 = 1564$ ). In.	250.00	7.500
Fineness Ratio	0.264	0.264
Area - Ft <sup>2</sup>		
Max. Cross-Sectional	240.88	0.3068
Planform		
Wetted		
Base		

TABLE III (Cont'd)

MODEL COMPONENT: CANOPY - C<sub>9</sub>GENERAL DESCRIPTION: Configuration 3A. Canopy used with fuselage  
B<sub>26</sub>.MODEL SCALE: 0.030.DRAWING NUMBER VL70-000143A

<u>DIMENSION:</u>	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Length ( $X_0$ - 434.643 to 578) In.	<u>143.357</u>	<u>4.301</u>
Max Width (@ $X_0$ = 513.127), In.	<u>152.412</u>	<u>4.572</u>
Max Depth (@ $X_0$ = 485.0), In.	<u>25.000</u>	<u>0.750</u>
Fineness Ratio	<u>          </u>	<u>          </u>
Area	<u>          </u>	<u>          </u>
Max Cross-Sectional	<u>          </u>	<u>          </u>
Planform	<u>          </u>	<u>          </u>
Wetted	<u>          </u>	<u>          </u>
Base	<u>          </u>	<u>          </u>

TABLE III (Cont'd)

MODEL COMPONENT: SLOTTED ELEVON (6-INCH GAP) - E<sub>43</sub>GENERAL DESCRIPTION: Configuration 140A 'B Orbiter elevon.NOTE: E<sub>43</sub> is a slotted version of E<sub>24</sub>. Data are for one side.MODEL SCALE: 0.030DRAWING NUMBER: VL70-000200 -006089, -006092

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Area - Ft <sup>2</sup>	<u>210.00</u>	<u>0.189</u>
Span (equivalent), In.	<u>349.2</u>	<u>10.476</u>
Inb'd equivalent chord, In.	<u>118.004</u>	<u>3.540</u>
Outb'd equivalent chord, In.	<u>55.192</u>	<u>1.656</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	<u>0.2096</u>	<u>0.2096</u>
At Outb'd equiv. chord	<u>0.4004</u>	<u>0.4004</u>
Sweep Back Angles, degrees		
Leading Edge	<u>0.00</u>	<u>0.00</u>
Tailing Edge	<u>-10.056</u>	<u>-10.056</u>
Hingeline (Product of Area & $\bar{c}$ )	<u>0.00</u>	<u>0.00</u>
Area Moment (Normal to hingeline), Ft <sup>3</sup>	<u>1587.25</u>	<u>0.043</u>
Mean Aerodynamic Chord, In.	<u>90.7</u>	<u>2.721</u>

TABLE III (Cont'd)

MODEL COMPONENT: BODY FLAP - FgGENERAL DESCRIPTION: Configuration 140A 'B orbiter body flap.Hingeline located at  $X_o = 1528.3$ .  $Z_o = 284.3$ MODEL SCALE: 0.030.

DRAWING NUMBER

VL70-000140A, -000145DIMENSION:FULL SCALEMODEL SCALELength ( $X_o = 1520$  to  $X_o = 1613$ ). In.93.002.79

Max Width (In.)

262.007.86Max Depth (@  $X = 1520$ ). In..23.000.69

Fineness Ratio

Area -  $\text{Ft}^2$ 

Max Cross-Sectional

Planform

150.525.1355

Wetted

Base

41.847.0377

TABLE III (Cont'd)

MODEL COMPONENT: OMS POD - M16GENERAL DESCRIPTION: Configuration 1400 orbiter OMS pod - short pod.MODEL SCALE: 0.030DRAWING NUMBER VL70-008401, -008410

<u>DIMENSION:</u>	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Length (OMS Fwd Sta. $X_0 = 1310.5$ ), In.	<u>258.50</u>	<u>7.755</u>
Max Width (@ $X_0 = 1511$ ), In.	<u>136.8</u>	<u>4.104</u>
Max Depth (@ $X_0 = 1511$ ), In.	<u>74.70</u>	<u>2.241</u>
Fineness Ratio	<u>2.484</u>	<u>2.484</u>
Area - Ft <sup>2</sup>		
Max Cross-Sectional	<u>58.864</u>	<u>0.053</u>
Planform	<u>          </u>	<u>          </u>
Wetted	<u>          </u>	<u>          </u>
Base	<u>          </u>	<u>          </u>

TABLE III (Cont'd)

MODEL COMPONENT: MPS NOZZLES - N<sub>24</sub>GENERAL DESCRIPTION: Configuration 140A 'B Orbiter MPS Nozzles.MODEL SCALE: 0.030DRAWING NUMBER: VL70-005030A, -000140A

DIMENSIONS:	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
MACH NO.		
Length - In.		
Gimbal Point to Exit Plane	<u>157.0</u>	<u>4.71'</u>
Throat to Exit Plane	<u>99.2</u>	<u>2.976</u>
Diameter - In.		
Exit	<u>91.00</u>	<u>2.73</u>
Throat	<u>          </u>	<u>          </u>
Inlet	<u>          </u>	<u>          </u>
Area - ft <sup>2</sup>		
Exit	<u>45.17</u>	<u>0.0407</u>
Throat	<u>          </u>	<u>          </u>
Gimbal Point (Station) - In.		
Upper Nozzle		
X	<u>1445.</u>	<u>43.35</u>
Y	<u>0</u>	<u>0</u>
Z	<u>443.00</u>	<u>13.29</u>
Lower Nozzles		
X	<u>1468.17</u>	<u>44.045</u>
Y	<u>+ 53.00</u>	<u>+ 1.59</u>
Z	<u>342.64</u>	<u>10.279</u>
Null Position - Deg.		
Upper Nozzle		
Pitch	<u>16</u>	<u>16</u>
Yaw	<u>0</u>	<u>0</u>
Lower Nozzle		
Pitch	<u>10</u>	<u>10</u>
Yaw	<u>3.5</u>	<u>3.5</u>



TABLE III (Cont'd)

MODEL COMPONENT: OMS NOZZLES - N28GENERAL DESCRIPTION: Configuration 140A 'B Orbiter OMS Nozzles.MODEL SCALE: 0.030DRAWING NUMBER: V170-000140A (Location)

DIMENSIONS:	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
MACH NO.		
Length - In.		
Gimbal Point to Exit Plane		
Throat to Exit Plane		
Diameter - In.		
Exit		
Throat		
Inlet		
Area - ft <sup>2</sup>		
Exit		
Throat		
Gimbal Point (Station) - In.		
Left <del>upper</del> Nozzle		
X <sub>o</sub>	<u>1518.0</u>	<u>45.54</u>
Y <sub>o</sub>	<u>88.0</u>	<u>2.65</u>
Z <sub>o</sub>	<u>492.0</u>	<u>14.76</u>
Right <del>lower</del> Nozzles		
X <sub>o</sub>	<u>1518.0</u>	<u>45.54</u>
Y <sub>o</sub>	<u>88.0</u>	<u>2.64</u>
Z <sub>o</sub>	<u>492.0</u>	<u>14.76</u>
Null Position - Deg.		
Left <del>upper</del> Nozzle		
Pitch	<u>15°49'</u>	<u>15°49'</u>
Yaw	<u>12°17'</u>	<u>12°17'</u>
Right <del>lower</del> Nozzle		
Pitch	<u>15°49'</u>	<u>15°49'</u>
Yaw	<u>12°17'</u>	<u>12°17'</u>

TABLE III (Cont'd)

MODEL COMPONENT: RUDDER - R<sub>5</sub>GENERAL DESCRIPTION: Configuration 140C orbiter rudder (identical to  
Configuration 140A/B rudder).MODEL SCALE: 0.030DRAWING NUMBER: VL70-000146B. --000095DIMENSIONS:

	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Area - Ft <sup>2</sup>	<u>100.15</u>	<u>0.090</u>
Span (equivalent), In.	<u>201.00</u>	<u>6.030</u>
Inb'd equivalent chord, In.	<u>91.585</u>	<u>2.748</u>
Outb'd equivalent chord, In.	<u>50.833</u>	<u>1.525</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
At Outb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
Sweep Back Angles, degrees		
Leading Edge	<u>34.83</u>	<u>34.83</u>
Tailing Edge	<u>26.25</u>	<u>26.25</u>
Hingeline	<u>34.83</u>	<u>34.83</u>
(Product of area & $\bar{c}$ )		
Area Moment (Normal to hingeline) Ft <sup>3</sup>	<u>610.92</u>	<u>0.0165</u>
Mean Aerodynamic Chord, In.	<u>73.2</u>	<u>2.196</u>

TABLE III (Cont'd)

MODEL COMPONENT: VERTICAL - VgGENERAL DESCRIPTION: Configuration 140C orbiter vertical tail(Identical to configuration 140A 'B vertical tail).MODEL SCALE: 0.030DRAWING NUMBER: VL70-000140C, -000146B

DIMENSIONS:	FULL SCALE	MODEL SCALE
TOTAL DATA		
Area (Theo) - Ft <sup>2</sup>		
Planform	413.253	0.372
Span (Theo) - In.	315.72	9.472
Aspect Ratio	1.675	1.675
Rate of Taper	0.507	0.507
Taper Ratio	0.404	0.404
Sweep-Back Angles, Degrees.		
Leading Edge	45.000	45.000
Trailing Edge	26.25	26.25
0.25 Element Line	41.13	41.13
Chords:		
Root (Theo) WP	268.50	8.055
Tip (Theo) WP	108.47	3.254
MAC	199.81	5.994
Fus. Sta. of .25 MAC	1463.35	43.901
W.P. of .25 MAC	635.52	19.066
B.L. of .25 MAC	0.0	0.0
Airfoil Section		
Leading Wedge Angle - Deg.	10.00	10.00
Trailing Wedge Angle - Deg.	14.92	14.92
Leading Edge Radius	3.00	0.060
Void Area	13.17	0.0019
Blanketed Area		

TABLE III (Conl'd)

MODEL COMPONENT: WING-W<sub>116</sub>GENERAL DESCRIPTION: Configuration 4

NOTE: Identical to W<sub>11</sub>, except airfoil thickness. Dihedral angle is  
along trailing edge of wing.

MODEL SCALE: 0.030

TEST NO. \_\_\_\_\_

DWG. NO. VL70-0001A0A, -000200DIMENSIONS:FULL-SCALEMODEL SCALETOTAL DATAArea (Theo.) Ft<sup>2</sup>

Planform

Span (Theo) In.

Aspect Ratio

Rate of Taper

Taper Ratio

Dihedral Angle, degrees

Incidence Angle, degrees

Aerodynamic Twist, degrees

Sweep Back Angles, degrees

Leading Edge

Trailing Edge

0.25 Element Line

Chords:

Root (Theo) B.P.0.0.

Tip, (Theo) B.P.

MAC

Fus. Sta. of .25 MAC

W.P. of .25 MAC

B.L. of .25 MAC

EXPOSED DATAArea (Theo) Ft<sup>2</sup>Span, (Theo) In. BP108

Aspect Ratio

Taper Ratio

Chords

Root BP108

Tip 1.00  $\frac{b}{2}$ 

MAC

Fus. Sta. of .25 MAC

W.P. of .25 MAC

B.L. of .25 MAC

Airfoil Section (Rockwell Mod NASA)  
XXXX-64Root  $\frac{b}{2}$  =Tip  $\frac{b}{2}$  =

Data for (1) of (2) Sides

Leading Edge Cuff

Planform Area Ft<sup>2</sup>

Leading Edge Intersects Fus M. L. @ Sta

Leading Edge Intersects Wing @ Sta

**Notes:**

1. Positive directions of force coefficients, moment coefficients, and angles are indicated by arrows
2. For clarity, origins of wind and stability axes have been displaced from the center of gravity

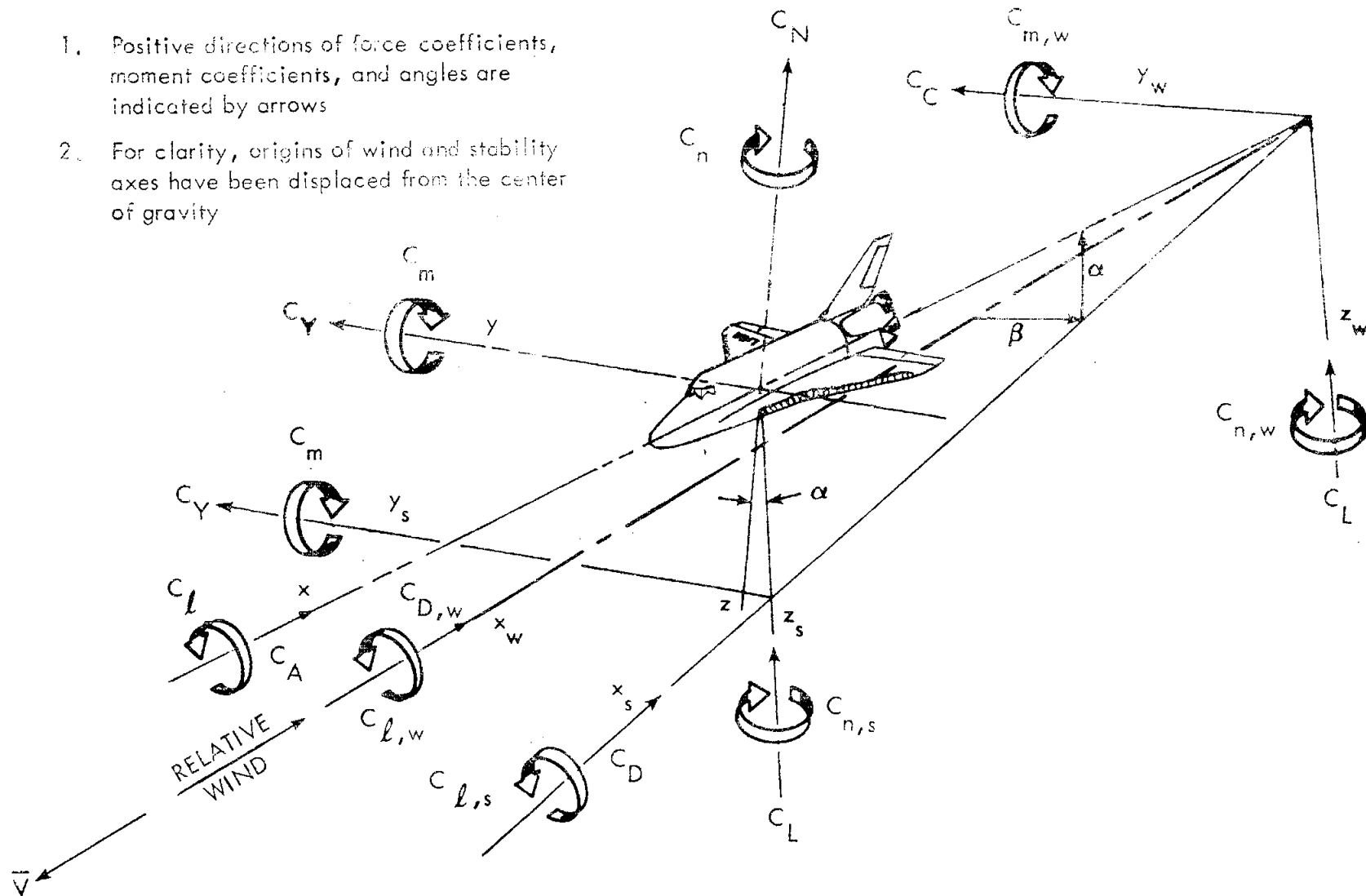
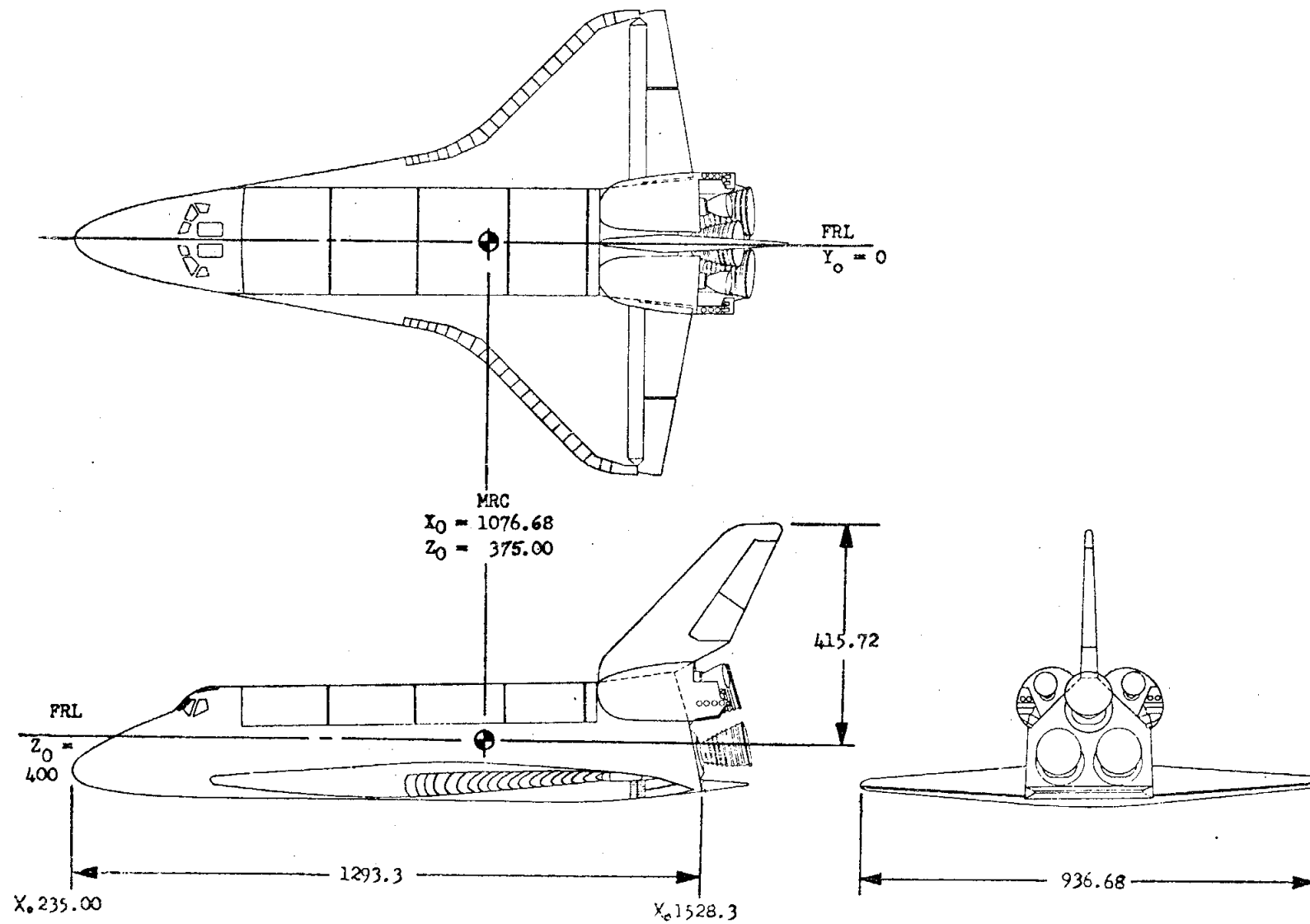
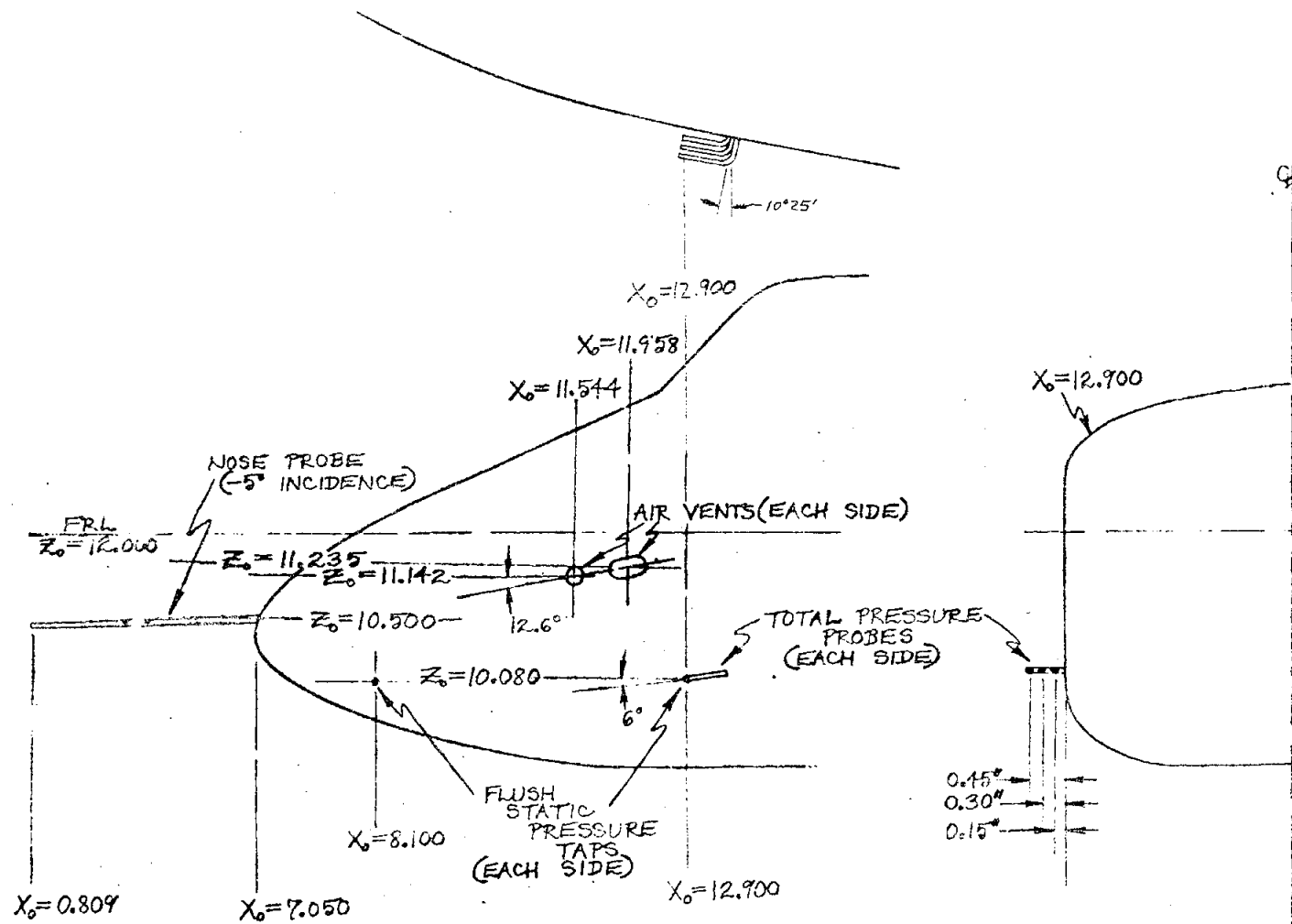


Figure 1. - Axis systems



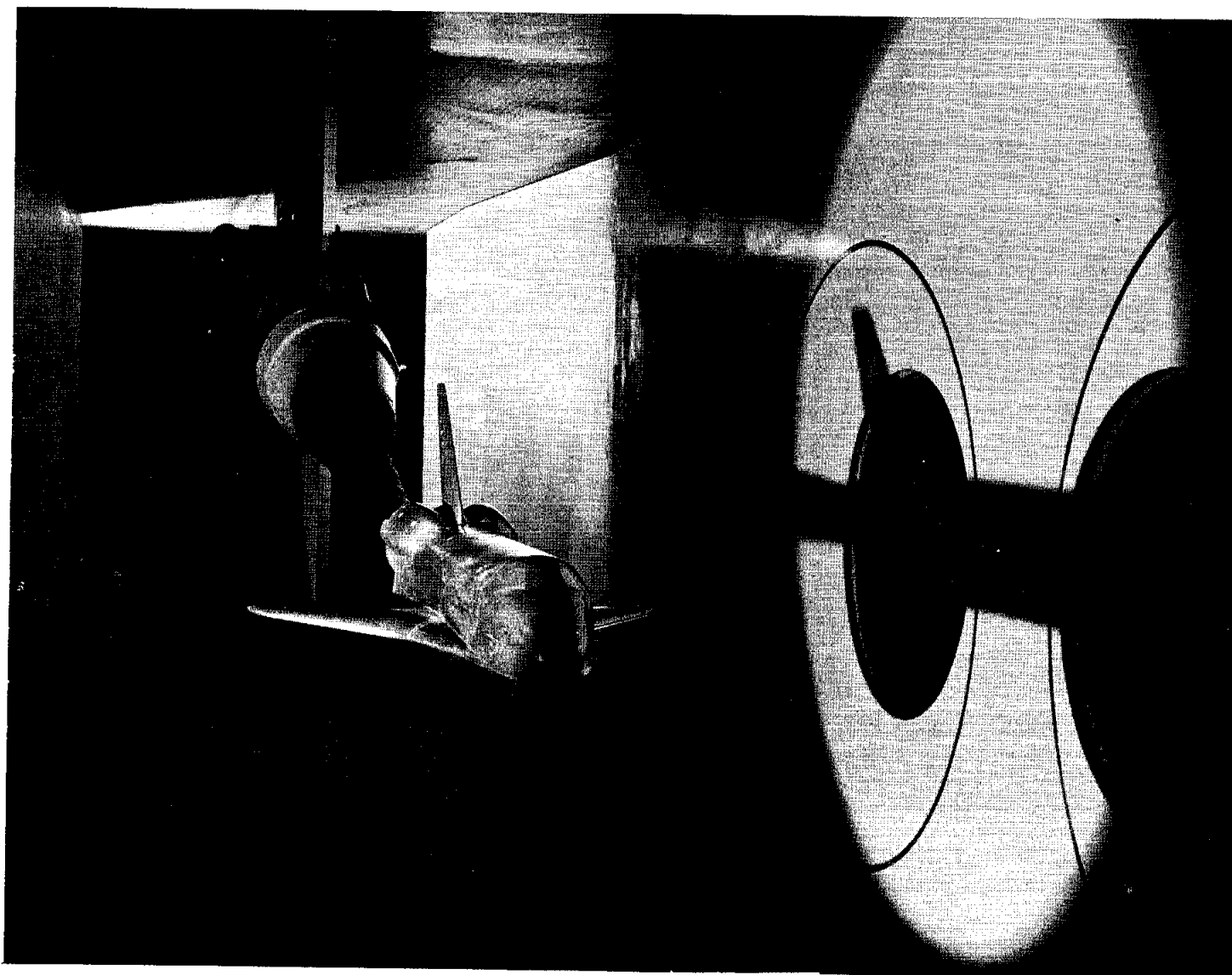
a. Three-View of Modified Orbiter Configuration

Figure 2. - Model sketches.



b. Pitot/Static Instrumentation for Model

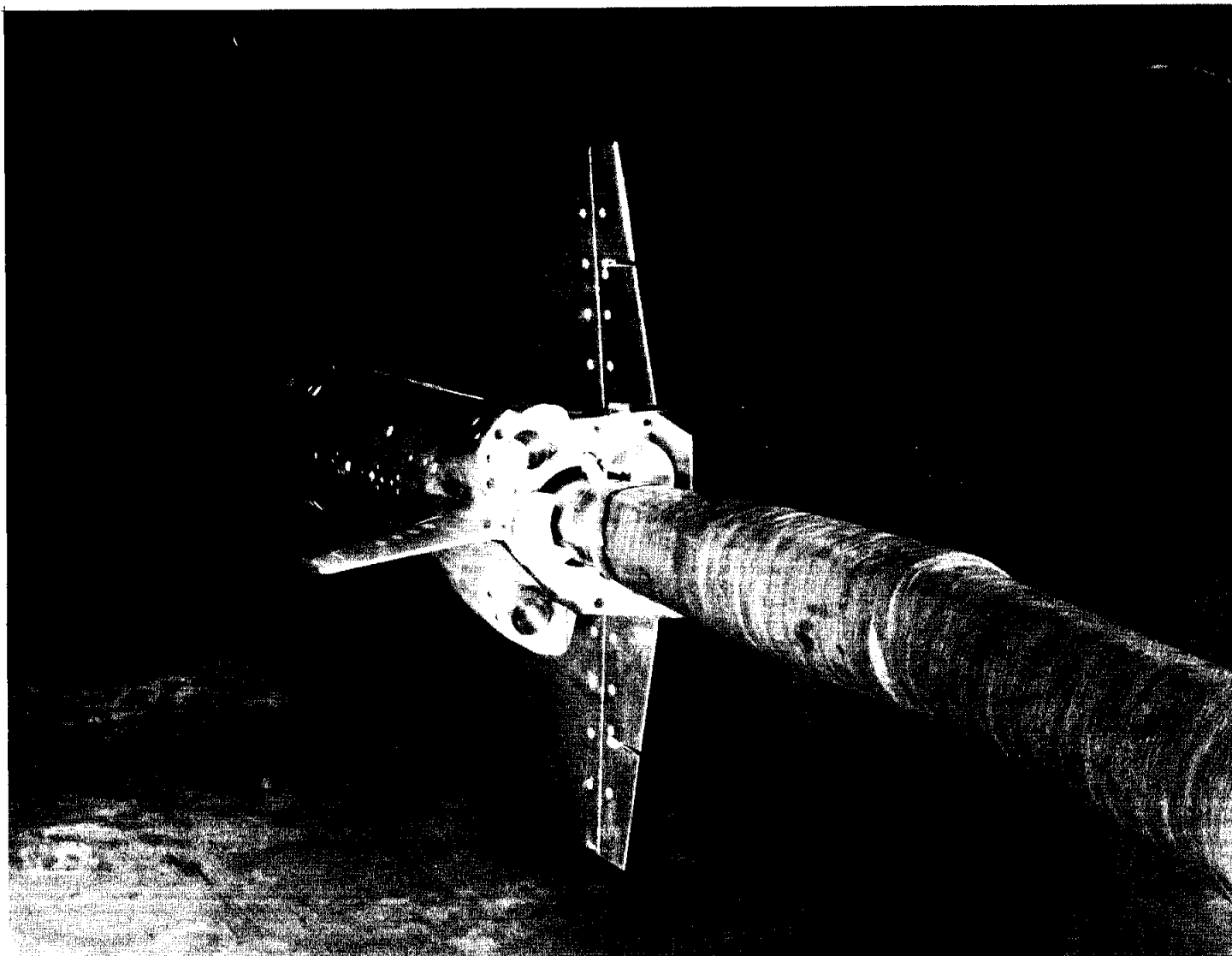
Figure 2. - Concluded.



a. Three-Quarter Front View of Model Mounted Upright in the 8 x 7 Foot Tunnel

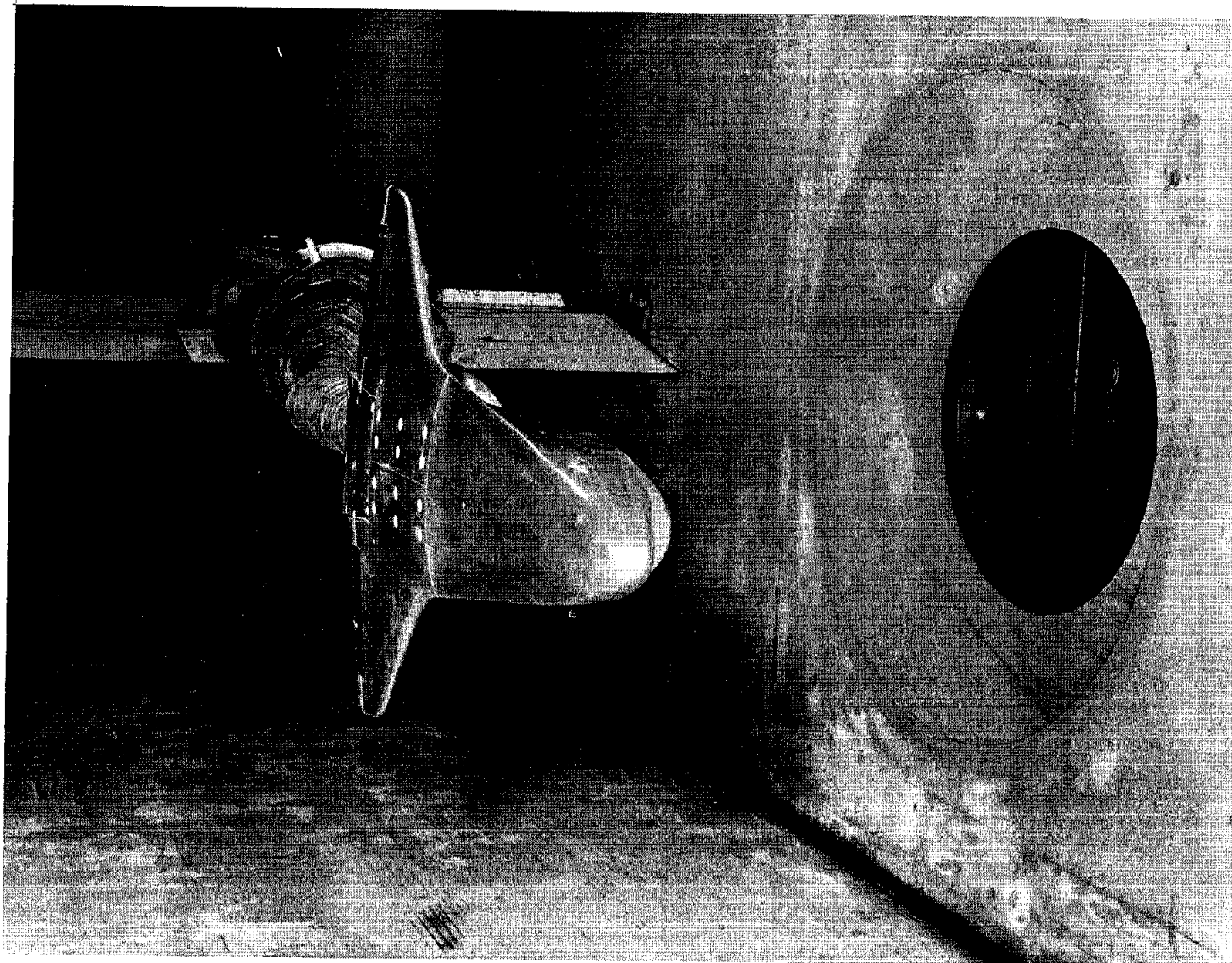
Figure 3. - Model Photographs.





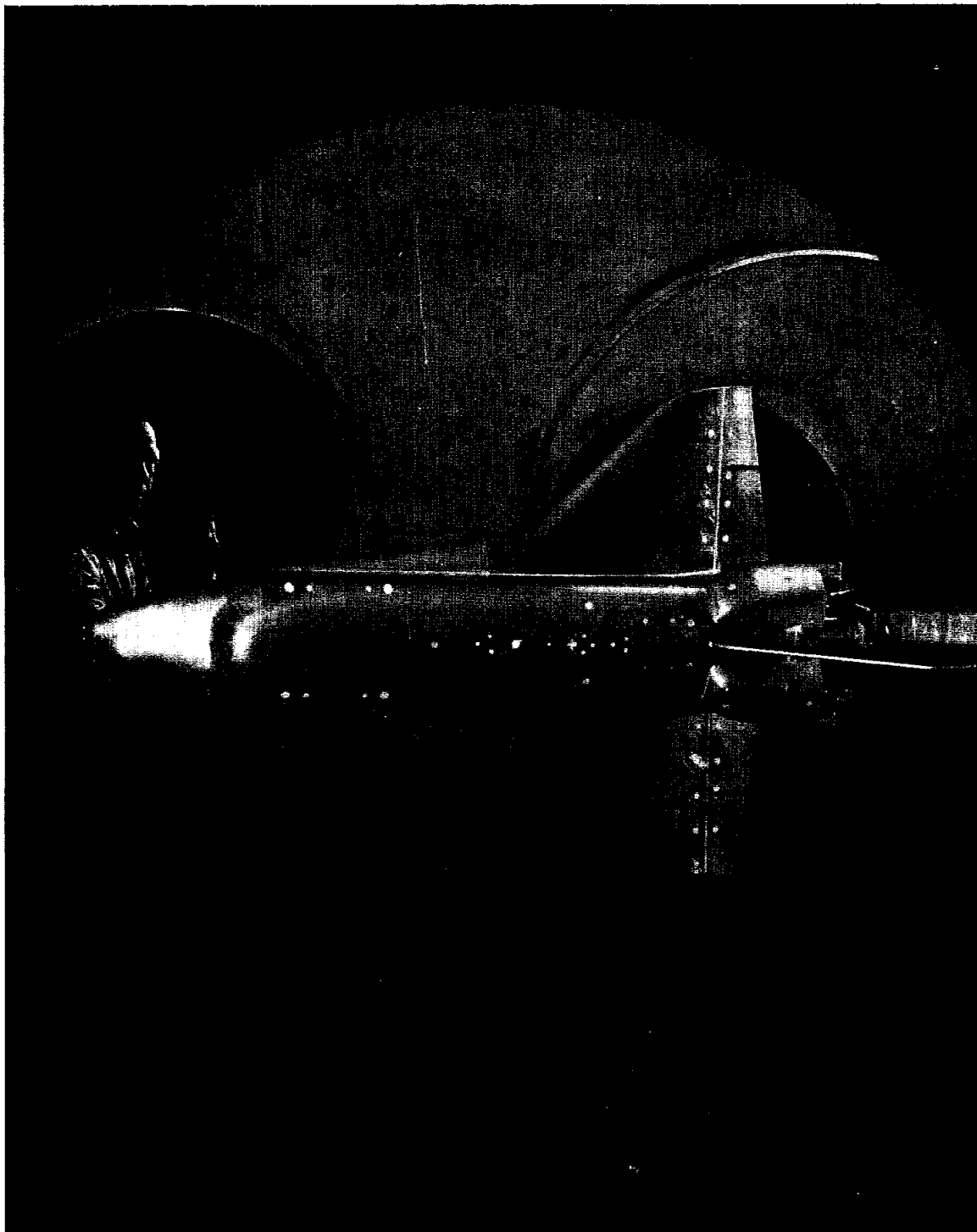
b. Rear View of Model Mounted Sideways in the 8 x 7 Foot Tunnel

Figure 3. - Continued.



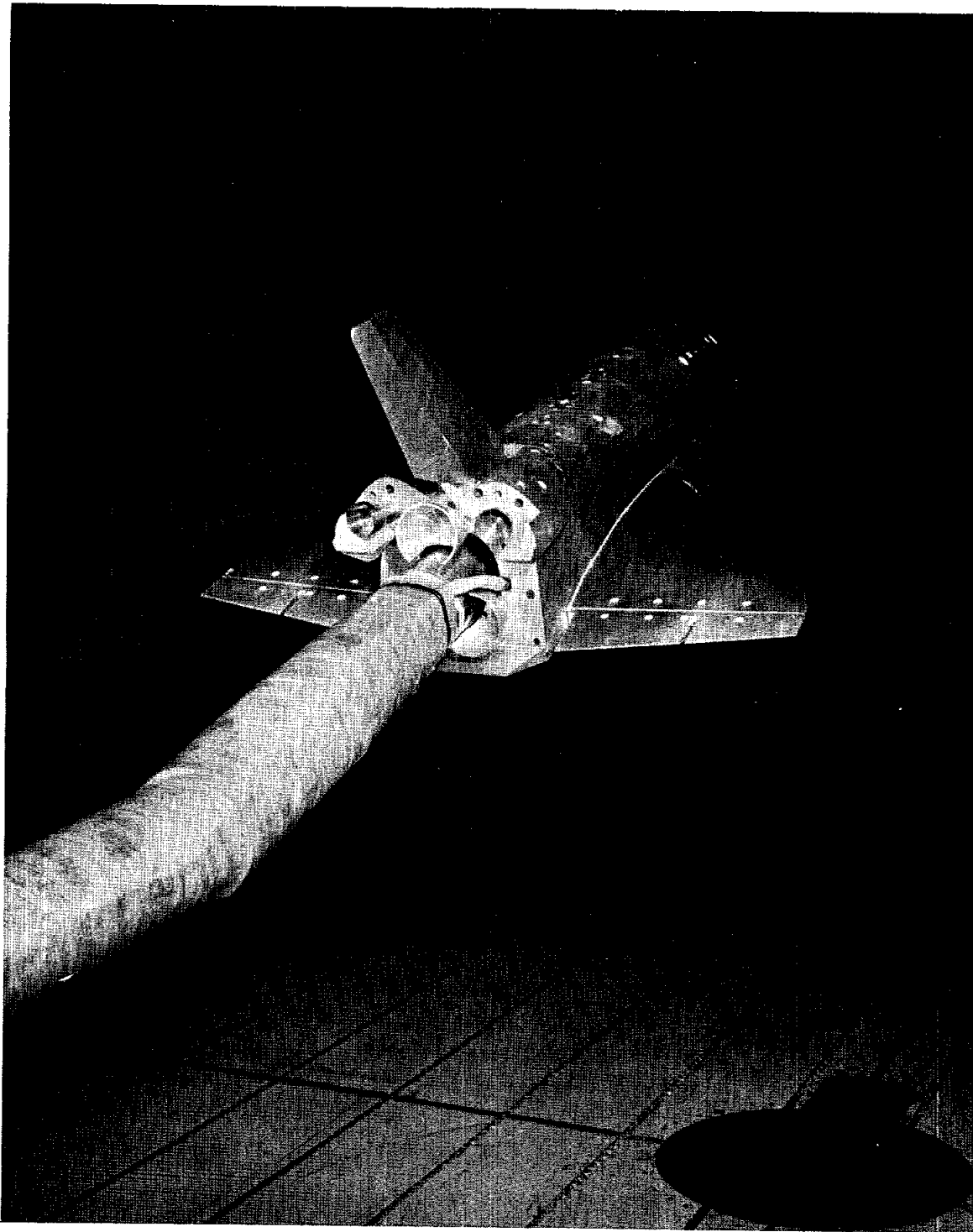
c. Front View of Model Mounted Sideways in the 9 x 7 Foot Tunnel

Figure 3. - Continued.



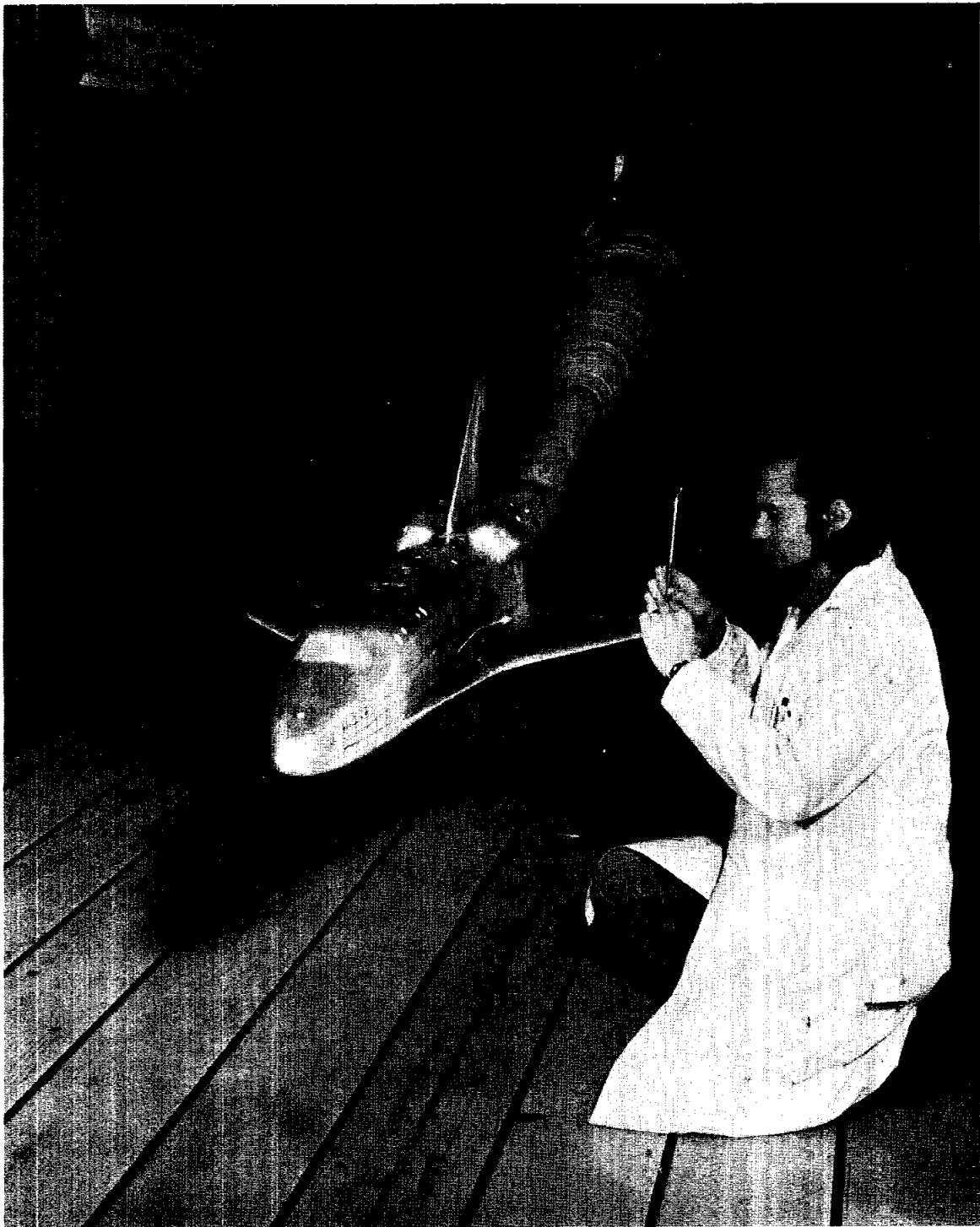
d. Top View of Model Mounted Sideways in the 9 x 7 Foot Tunnel

Figure 3. - Continued.



e. Rear View of Model Mounted Upright in the 11 x 11 Foot Tunnel

Figure 3. - Continued.



f. Front View of Model Mounted Upright in the 11 x 11 Foot Tunnel

Figure 3. - Concluded.

## DATA FIGURES

(RE7915) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	MACH	PARAMETRIC VALUES			
○	.600	BETA	.000	ELEVON	.000
□	.700	AILRON	.000	BDFLAP	-7.170
◇	.800				
△	.850				

REFERENCE INFORMATION		
SREF	2699.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	376.0000	IN. ZO
SCALE	.0001	

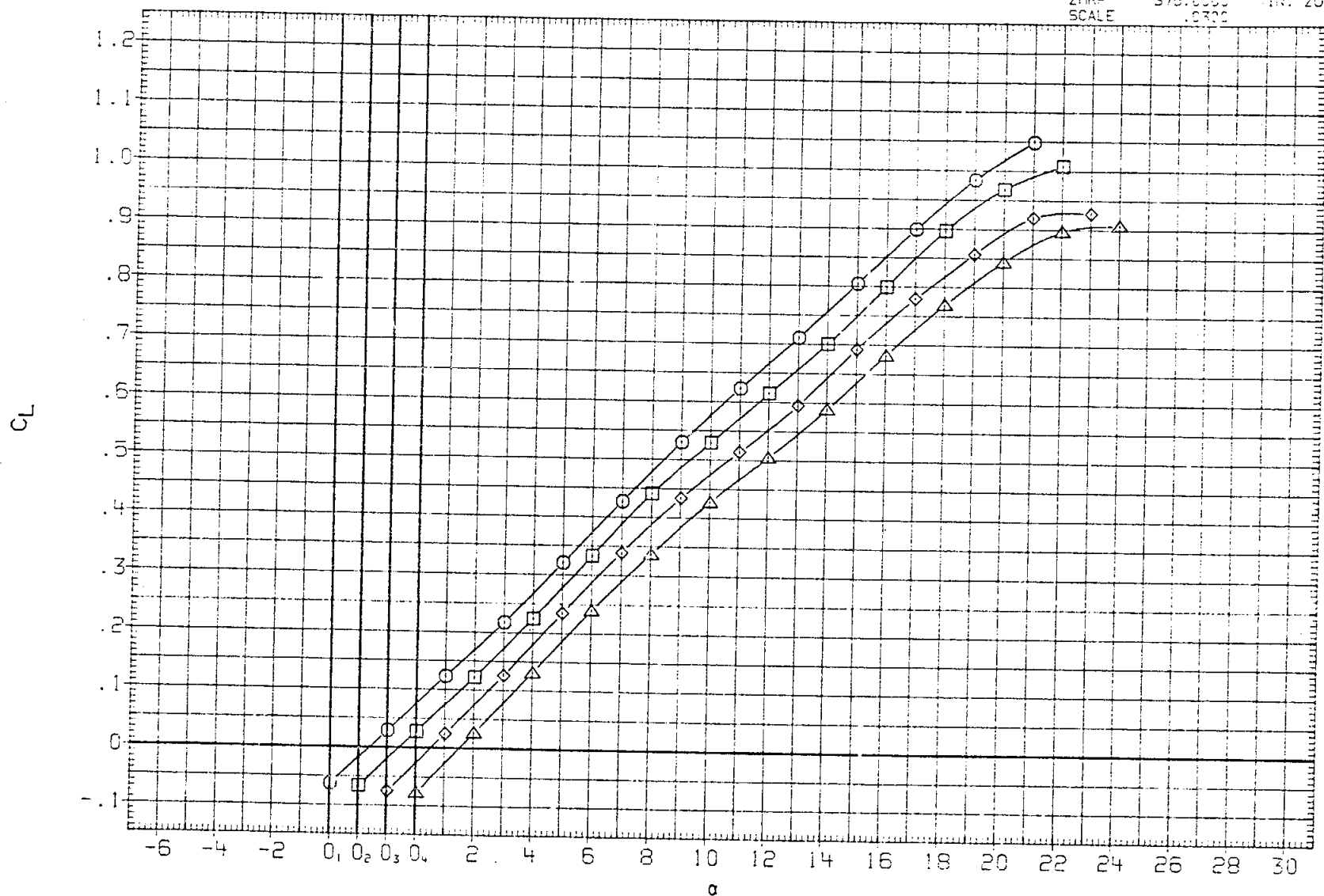


FIG. 4 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH ALPHA FOR STANDARD ORBITER

SYMBOL		MACH		PARAMETRIC VALUES	
○	1.000	BETA	1.000	ELEVON	1.000
□	1.950	AILRON	1.000	BDPLAP	-7.170
◇	1.980				
△	1.050				

REFERENCE INFORMATION		
SREF	2590.0000	SQ. FT.
LEEF	474.8000	IN.
BREF	935.6800	IN.
XREF	1075.6800	IN. XO
YREF	0.0000	IN. YO
ZREF	375.0000	IN. ZO
SCALE	10000	

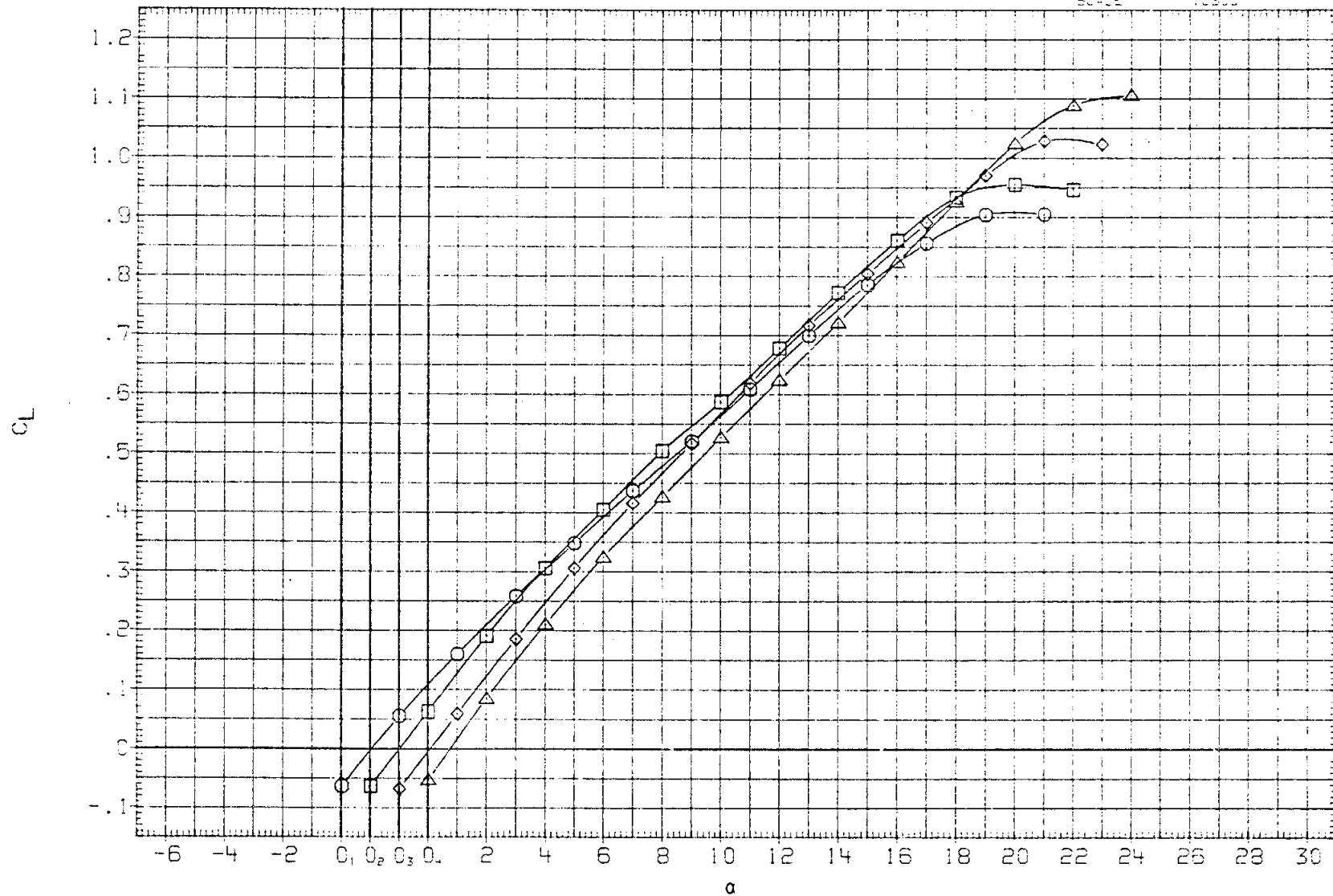


FIG. 4 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH ALPHA FOR STANDARD ORBITER



(RE7915) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	MACH	PARAMETRIC VALUES			
CL	1.100	BETA	.000	ELEVON	.000
	1.150	AILRON	.000	BDFLAP	-7.170
	1.200				
	1.300				

REFERENCE INFORMATION		
SREF	2590.0000	60. FT.
LREF	474.0000	IN.
BREF	936.0000	IN.
XMRP	1076.0000	IN. X0
YMRP	1.0000	IN. X0
ZMRP	375.0000	IN. Z0
SCALE	0.0010	



FIG. 4 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH ALPHA FOR STANDARD ORBITER

SYMBOL MACH PARAMETRIC VALUES

04/00	1.400	BETA	.000	ELEVON	.000
	1.500	AILRON	.000	BOFLAP	-7.170
	1.600				
	1.700				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LRST	474.8000	IN.
BRST	936.6800	IN.
YVSB	1076.6800	IN. XO
YVSB	.0000	IN. YO
ZVSB	375.0000	IN. ZO
SCALE	.0300	

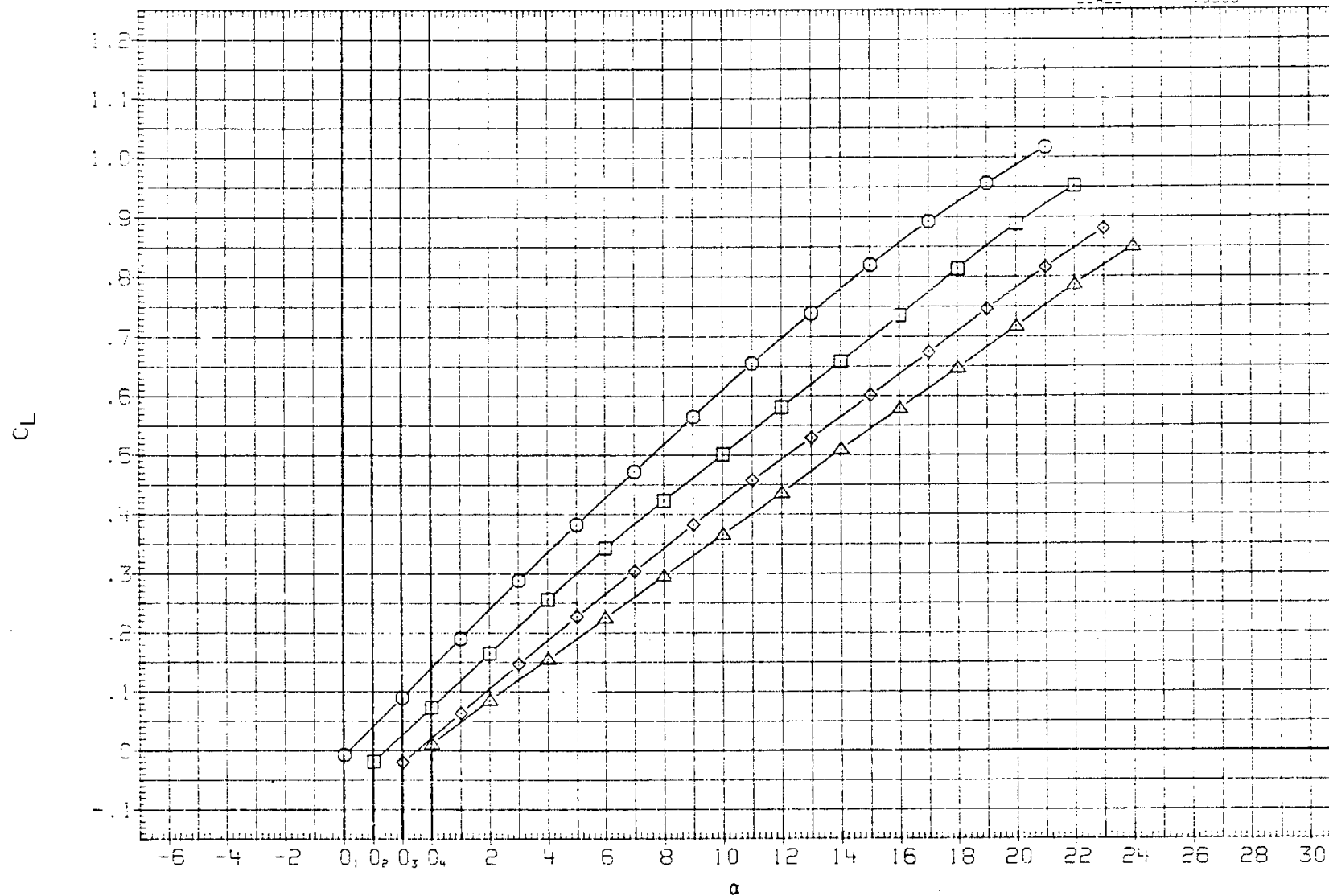


FIG. 4 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH ALPHA FOR STANDARD ORBITER

(RE7915) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	MACH	BETA	PARAMETRIC VALUES	ELEVON	SDFLAP
○	2.750		.000	.000	
□	2.500	AILRON	.000		-7.170
◇	3.000				
△	3.500				

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. YO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

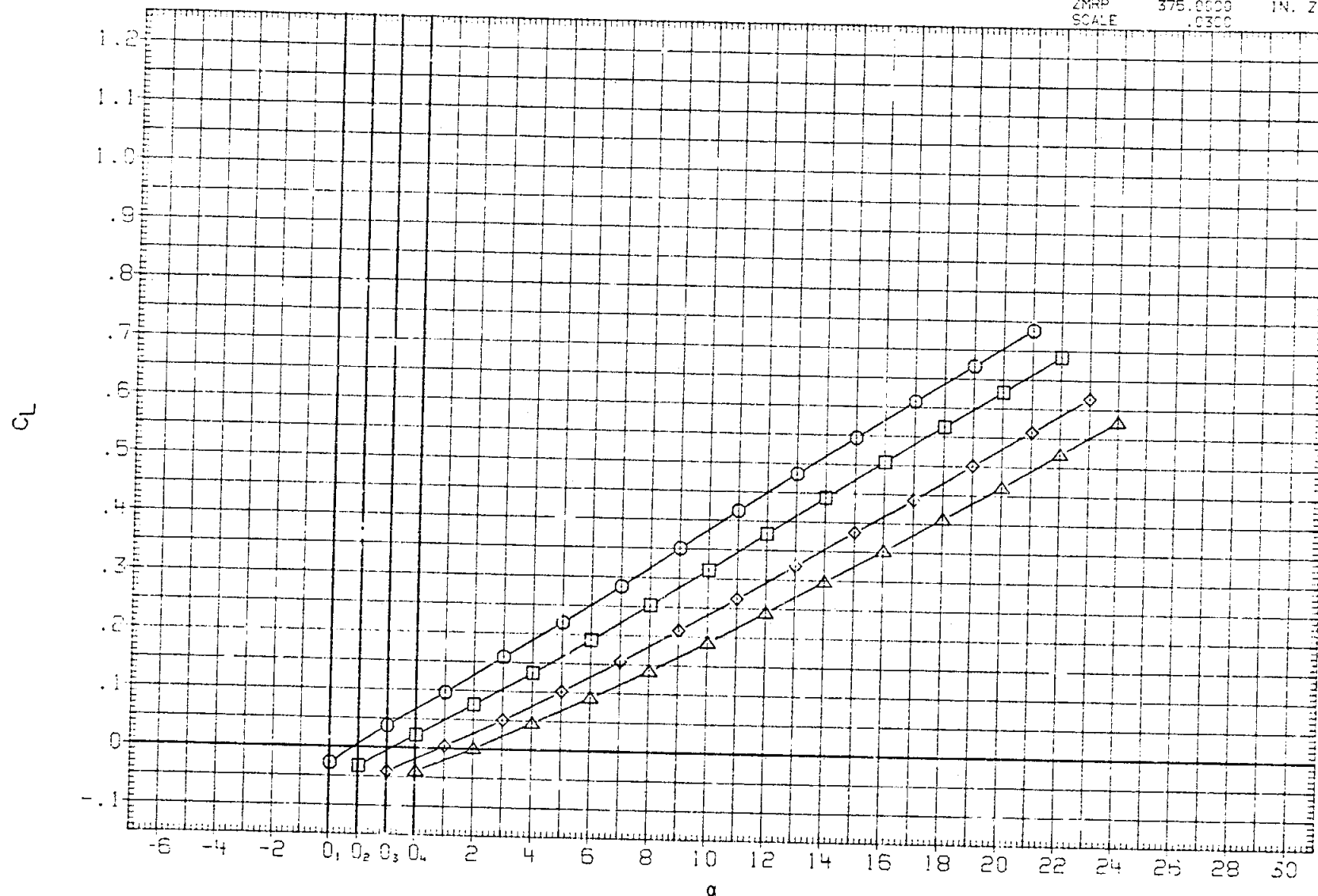


FIG. 4 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH ALPHA FOR STANDARD ORBITER

SYMBOL

MACH

PARAMETRIC VALUES

0.150  
0.100  
0.050  
0.000.600  
.700  
.800  
.900  
1.000BETA  
AILPON.000  
.000ELEVON  
BDFLAP.000  
-7.173

REFERENCE INFORMATION

SRP	2590.0000	SO. F.
LRP	474.9000	IN.
BRP	936.6000	IN.
XMPP	1076.6000	IN. XO
YMPP	1000.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	10300	

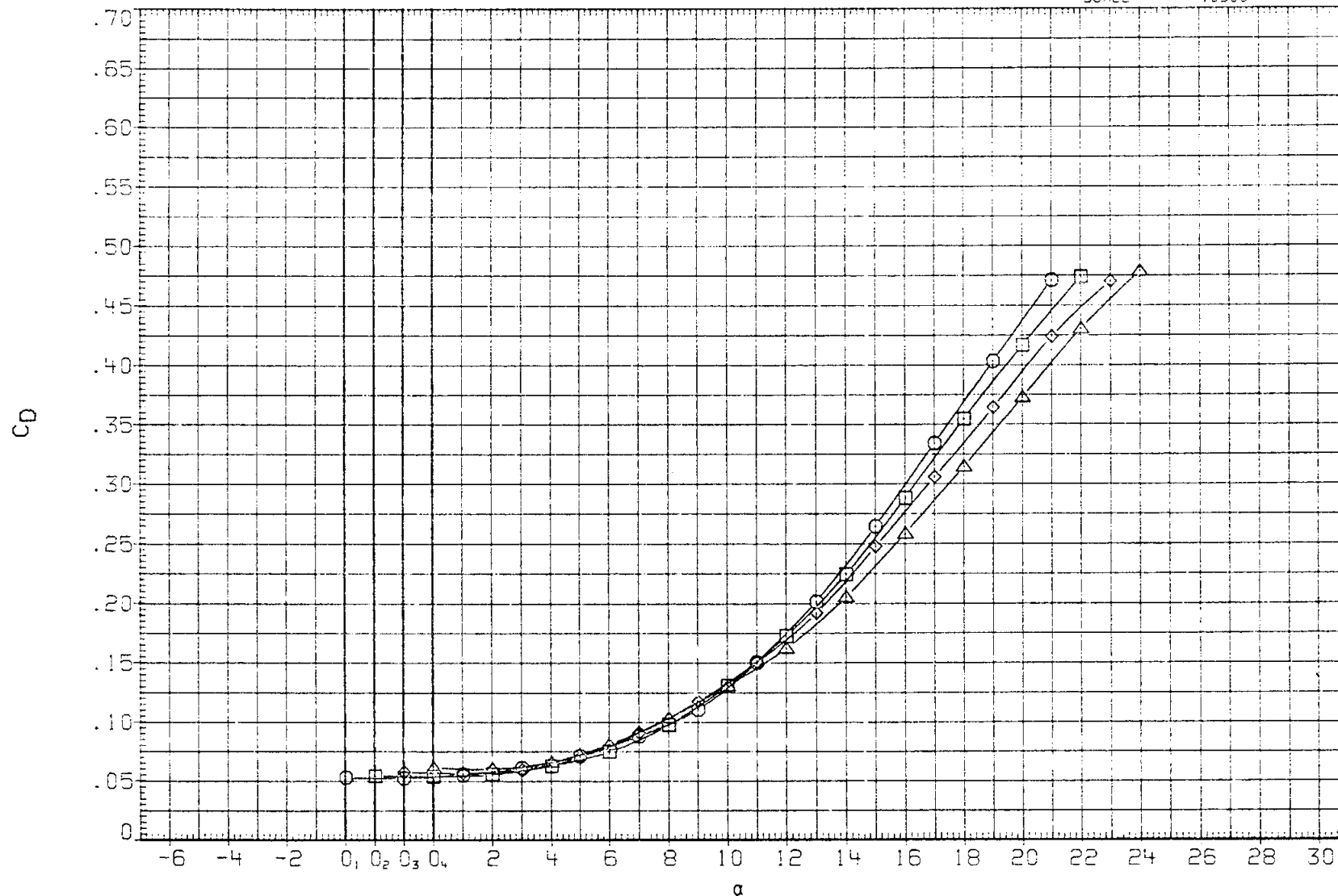


FIG. 4 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH ALPHA FOR STANDARD ORBITER

(RE7915) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	MACH	BETA	PARAMETRIC VALUES	ELEVON	BOFLAP
○	.900		.000	.000	
□	.950	AILRON	.000		-7.170
◇	.980				
△	1.050				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.6000	IN.
BREF	956.6900	IN.
XMPP	1076.6900	IN. XO
YMPP	.0000	IN. YO
ZMPP	376.0100	IN. ZO
SCALE	.0100	

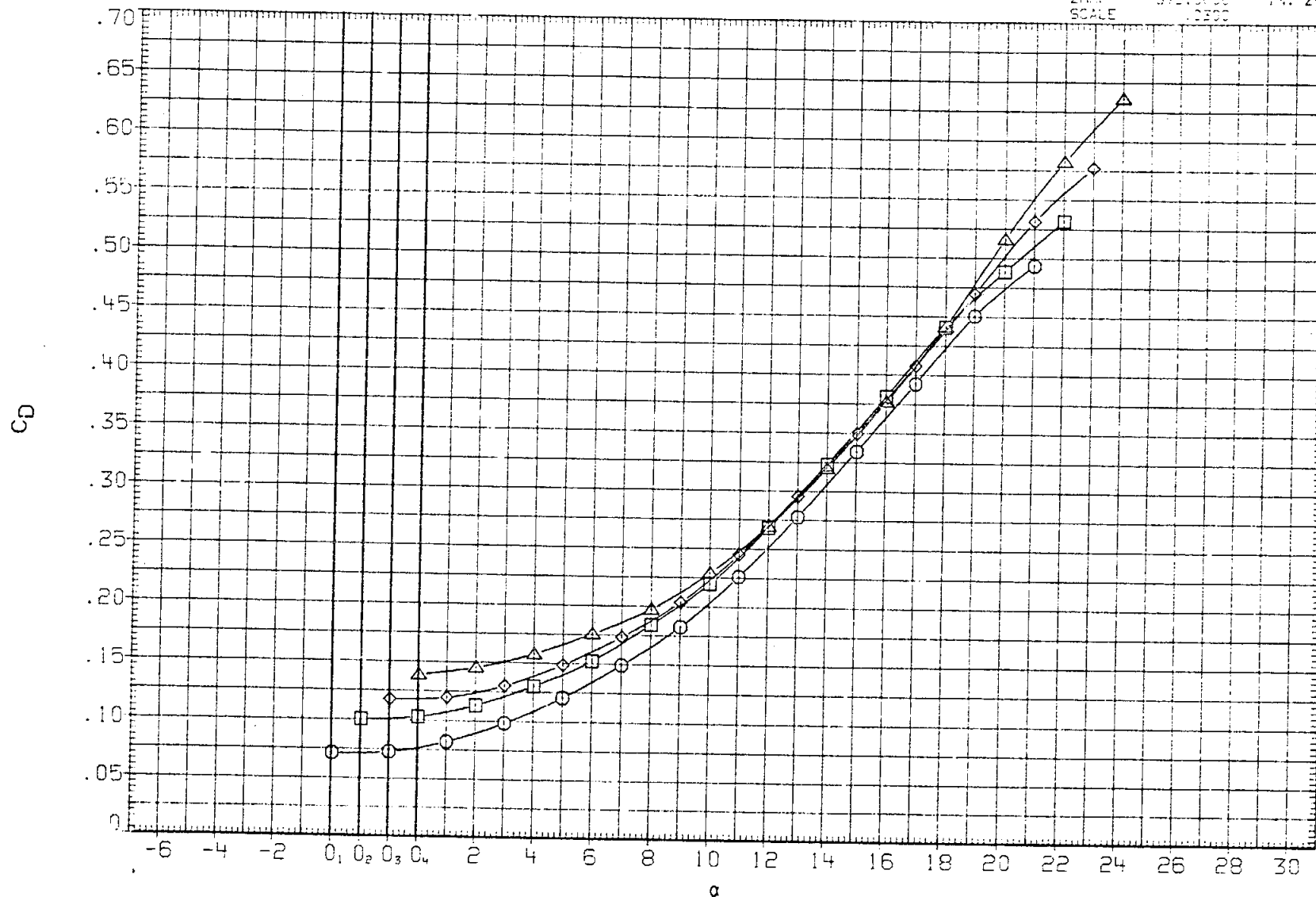


FIG. 4 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH ALPHA FOR STANDARD ORBITER

SYMBOL

MACH

PARAMETRIC VALUES

0.000  
0.000  
0.000  
0.000  
0.0001.100  
1.000  
0.900  
0.800  
0.700BETA  
ATLRON.000  
.000ELEVON  
BDFLAP.000  
-7.170

REFERENCE INFORMATION

SRFT	2680.0000	SG, FT.
LRFT	477.6000	IN.
BRFT	1030.0000	IN.
XRFT	1075.0000	IN, X0
YRFT	1000.0000	IN, Y0
ZRFT	370.0000	IN, Z0
SCALE	10000	

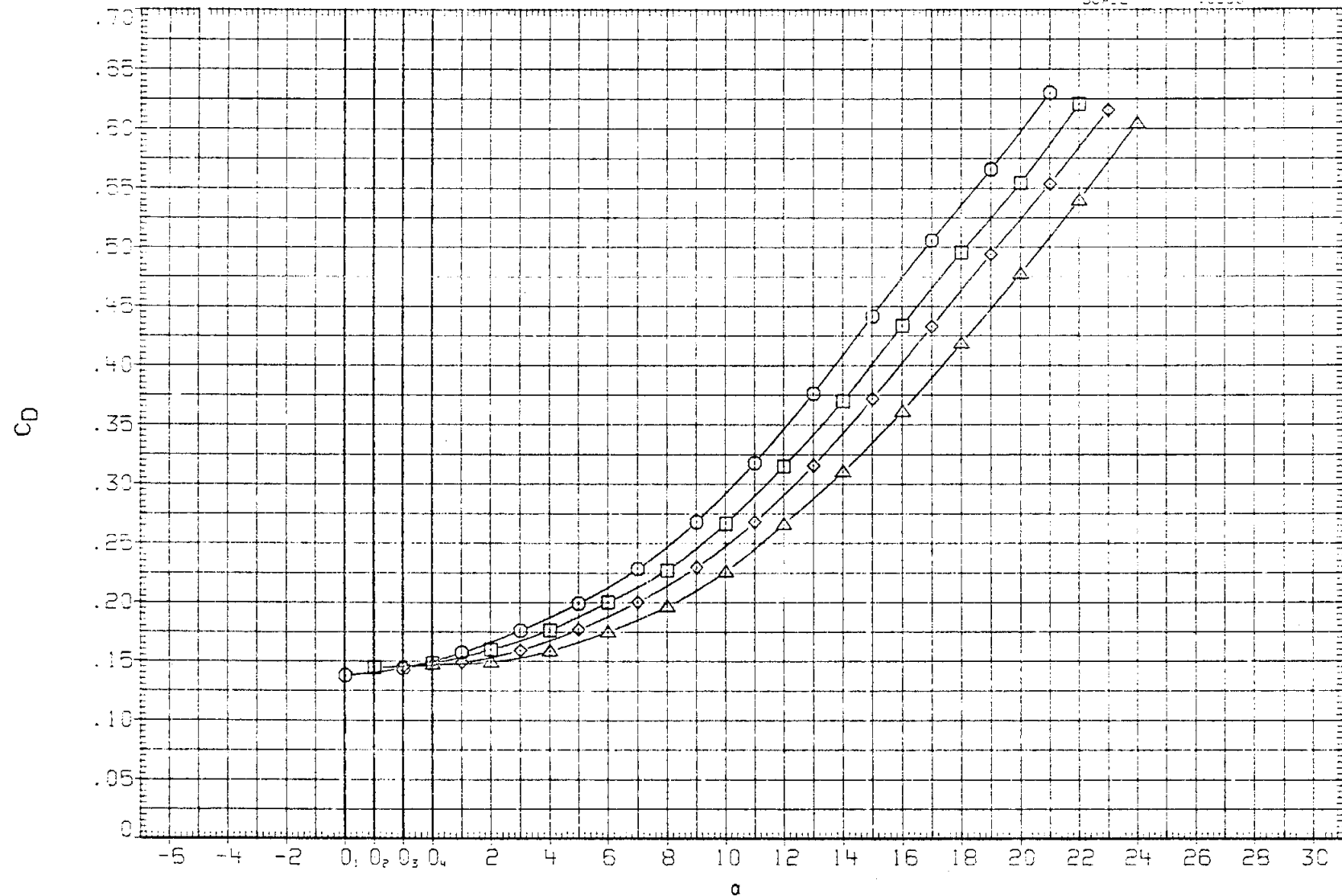


FIG. 4 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH ALPHA FOR STANDARD ORBITER

(RE7915) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	MACH	PARAMETRIC VALUES			
○	1.400	BETA	.000	ELEVON	.000
□	1.550	AILRON	.000	BDFLAP	-7.170
◇	1.750				
△	2.000				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

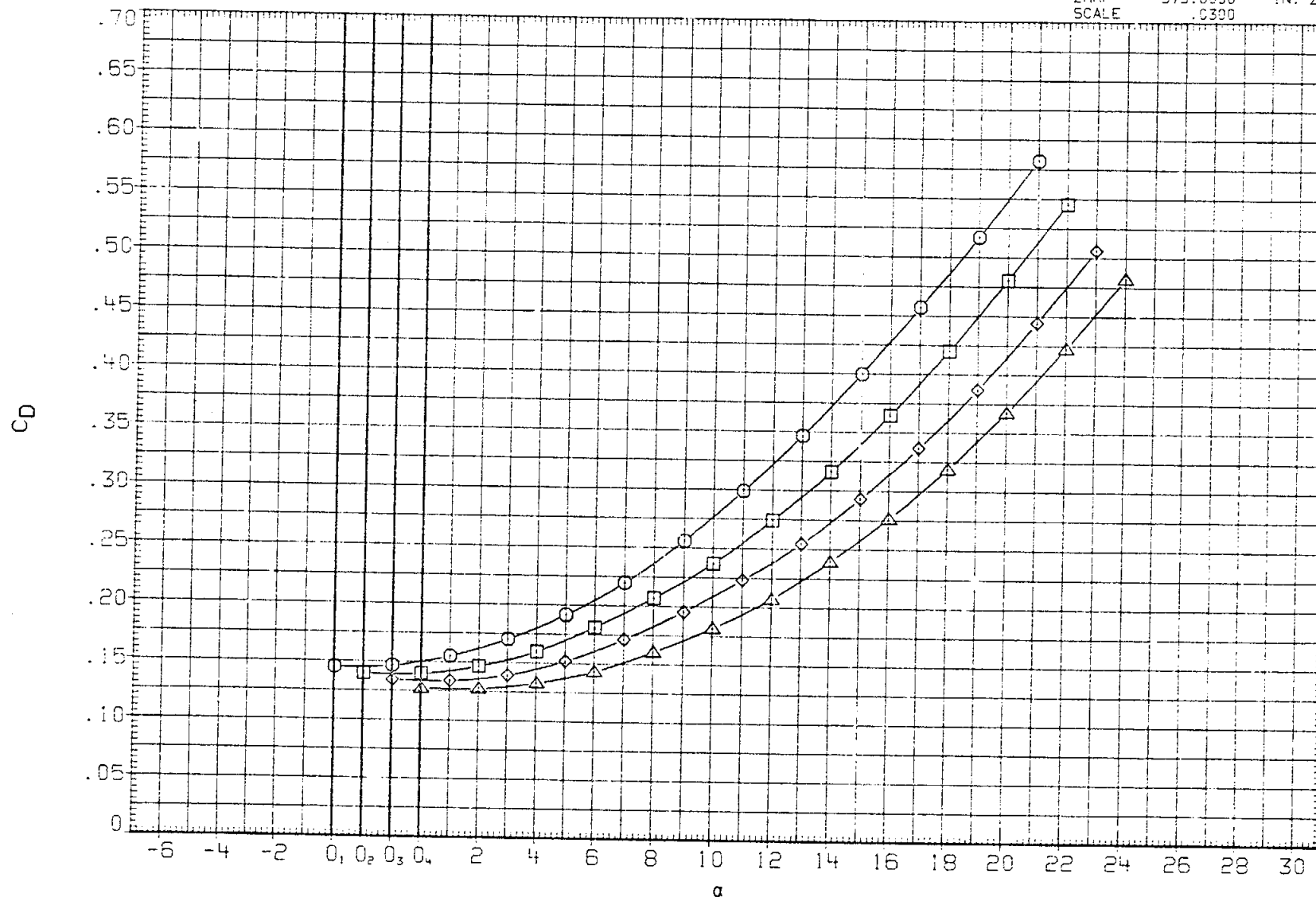


FIG. 4 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH ALPHA FOR STANDARD ORBITER

SYMBOL

MACH

PARAMETRIC VALUES

C  
N  
Z2.250  
2.500  
3.000  
3.500BETA  
AIRLON.000  
.000ELEVON  
BDFLAP.000  
-7.170

REFERENCE INFORMATION

SPRT	2590.0000	50. FT.
LPRT	47.180000	IN.
BRPT	938.68000	IN.
XMPP	1078.5800	IN. Y0
YMPP	1000.0000	IN. Y50
ZYPP	375.00000	IN. Y50
SCALE	10000	

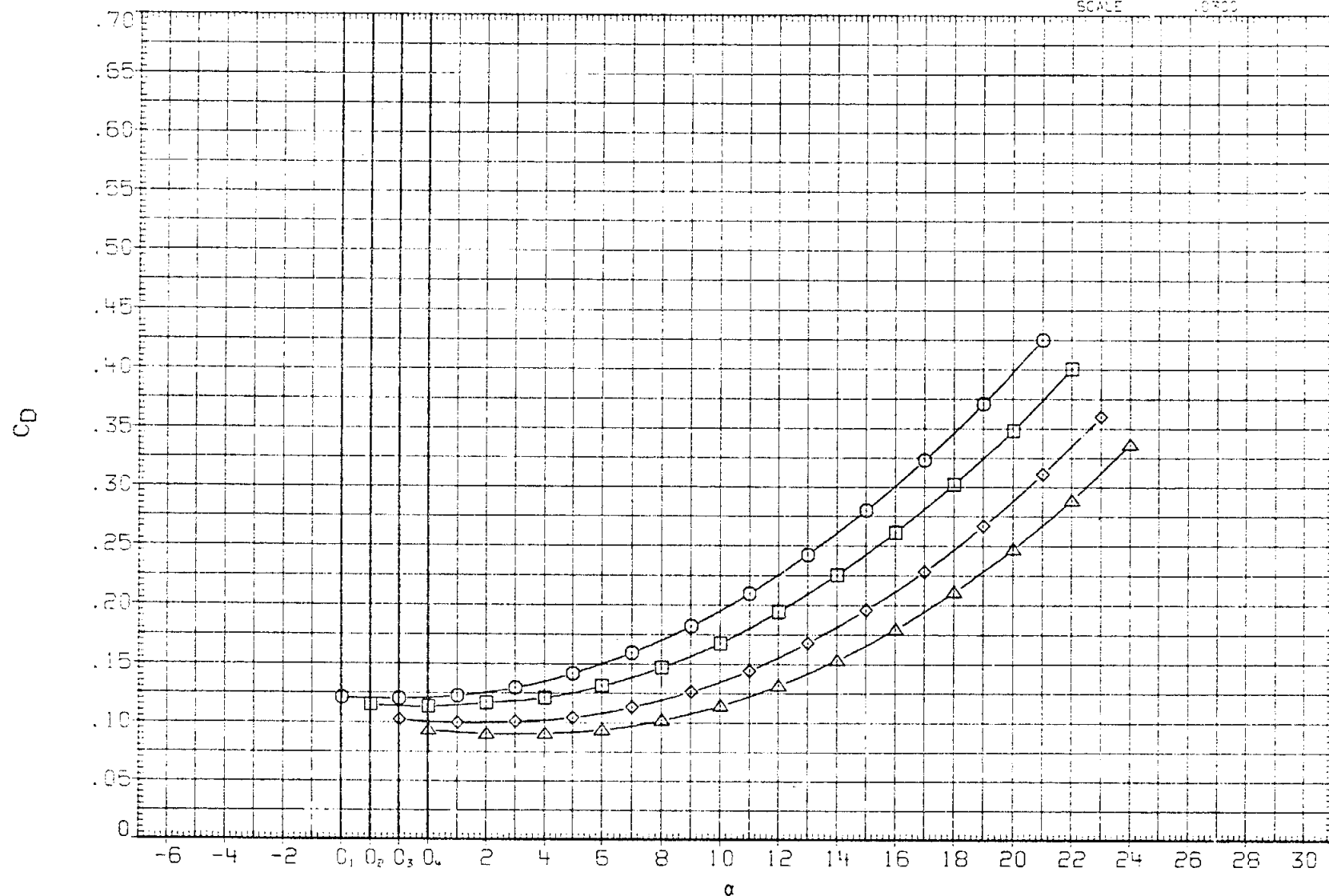


FIG. 4 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH ALPHA FOR STANDARD ORBITER



(RE7915) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	MACH	PARAMETRIC VALUES			
○	.600	BETA	.000	ELEVON	.000
◇	.700	AILRON	.000	BDFLAP	-7.170
□	.800				
△	.900				
	.950				

REFERENCE INFORMATION		
SREF	2690.0000	SO. FT.
LREF	474.8000	IN.
BREF	938.6800	IN.
XMRP	1075.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0350	

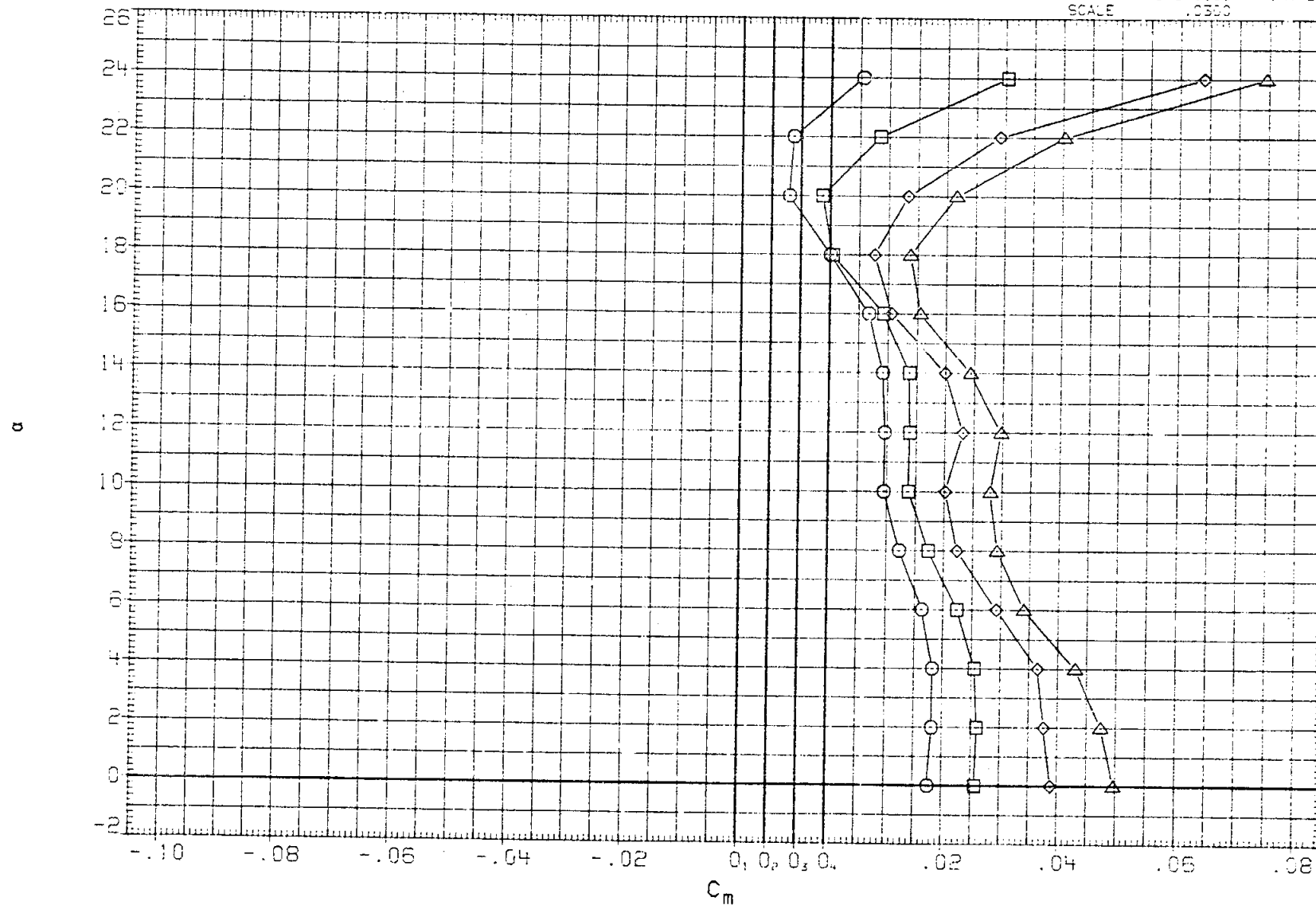


FIG. 4 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH ALPHA FOR STANDARD ORBITER

SYMBOL	MACH	BETA	PARAMETRIC VALUES	ELEVON	BOFLAP
$\circ$	.900		.000	.000	
$\square$	.950	AILRON	.000		-7.170
$\triangle$	.980				
$\diamond$	1.000				

REFERENCE INFORMATION		
SPREF	2690.0000	SQ. FT.
LEFF	474.8000	IN.
BPREF	9.88.6000	IN.
XYREF	179.0000	IN. XO
YVREF	179.0000	IN. YO
ZVREF	875.0000	IN. ZO
SCALE	1.0000	

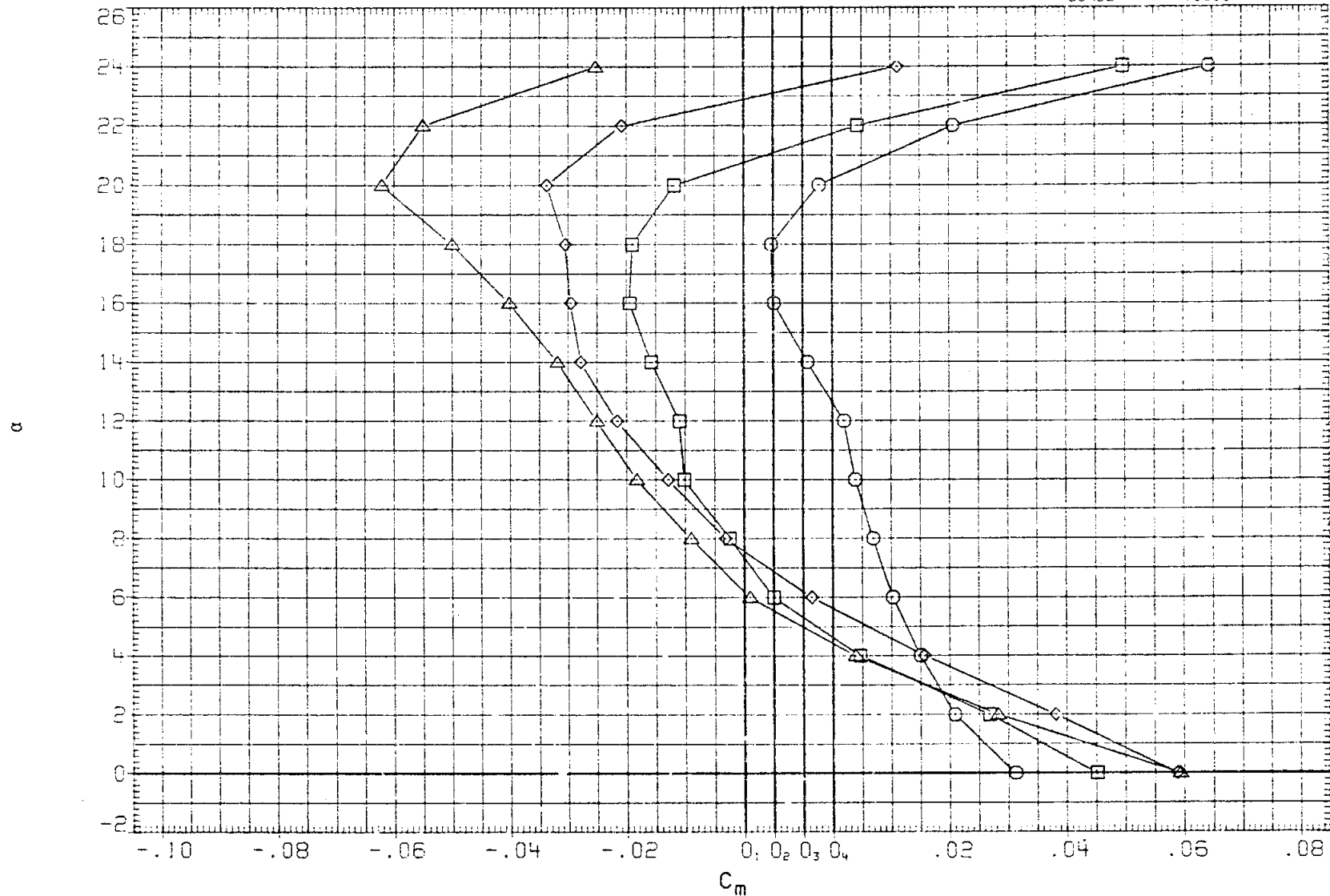


FIG. 4 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH ALPHA FOR STANDARD ORBITER

(RE7915) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	MACH	PARAMETRIC VALUES			
$\Delta$ $\diamond$ $\square$ $\circ$	1.100	BETA	.000	ELEVON	.000
	1.150	AILRON	.000	BDFLAP	-7.170
	1.200				
	1.300				

REFERENCE INFORMATION		
SREF	2690.0000	SQ. FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

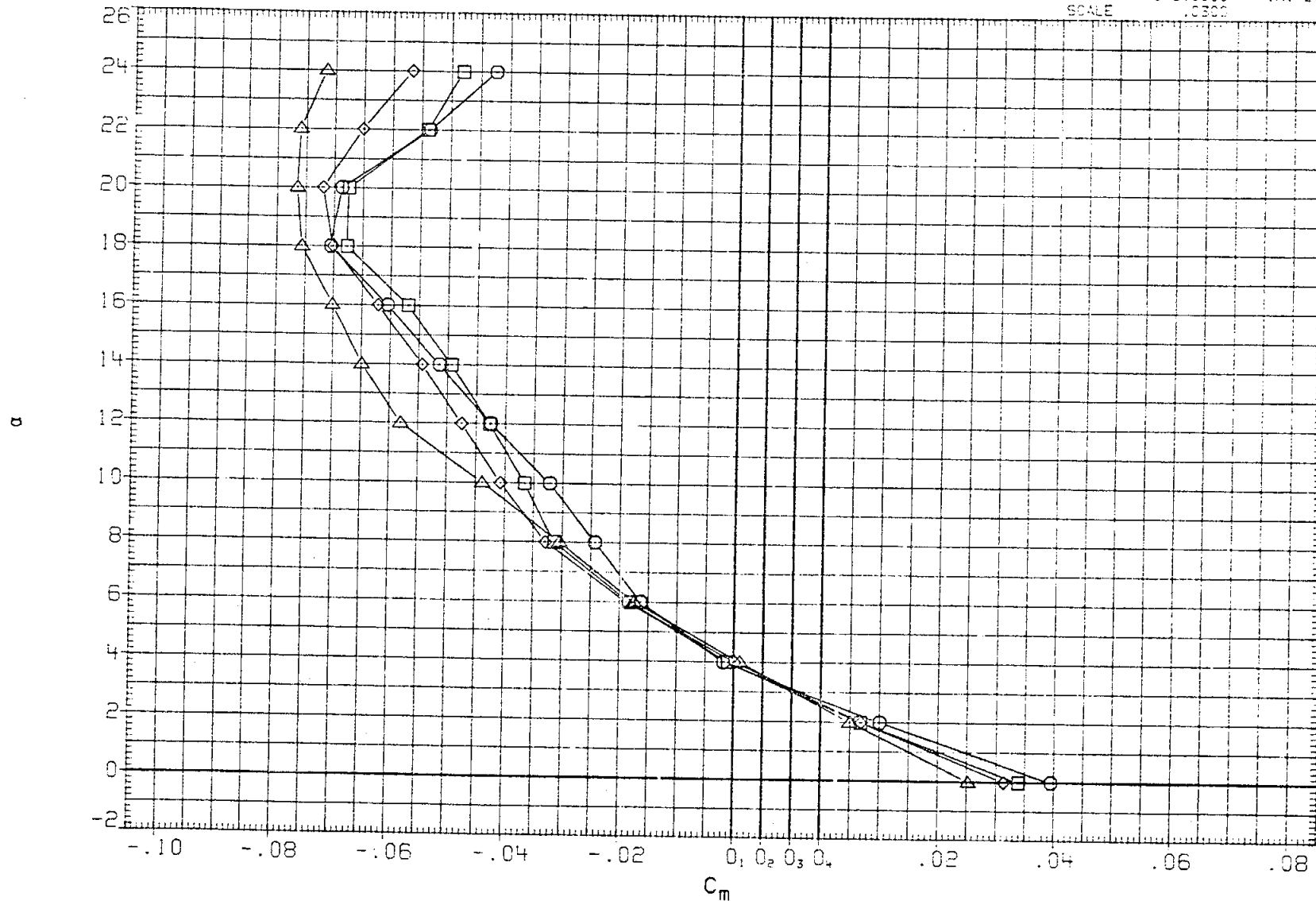


FIG. 4 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH ALPHA FOR STANDARD ORBITER

SYMBOL

MACH

PARAMETRIC VALUES

REFERENCE INFORMATION

0.000  
0.000  
0.000  
0.0001.400  
1.600  
1.800  
2.000BETA  
AILRON.000  
.000ELEVON  
BDFLAP.000  
-7.170

SPEP	2690.0000	50.711
LREF	472.00000	IN.
SPRP	986.00000	IN.
XYBP	1018.00000	IN. X0
YKBP	1018.00000	IN. Y0
ZKBP	378.00000	IN. Z0
SCALE	.0000	

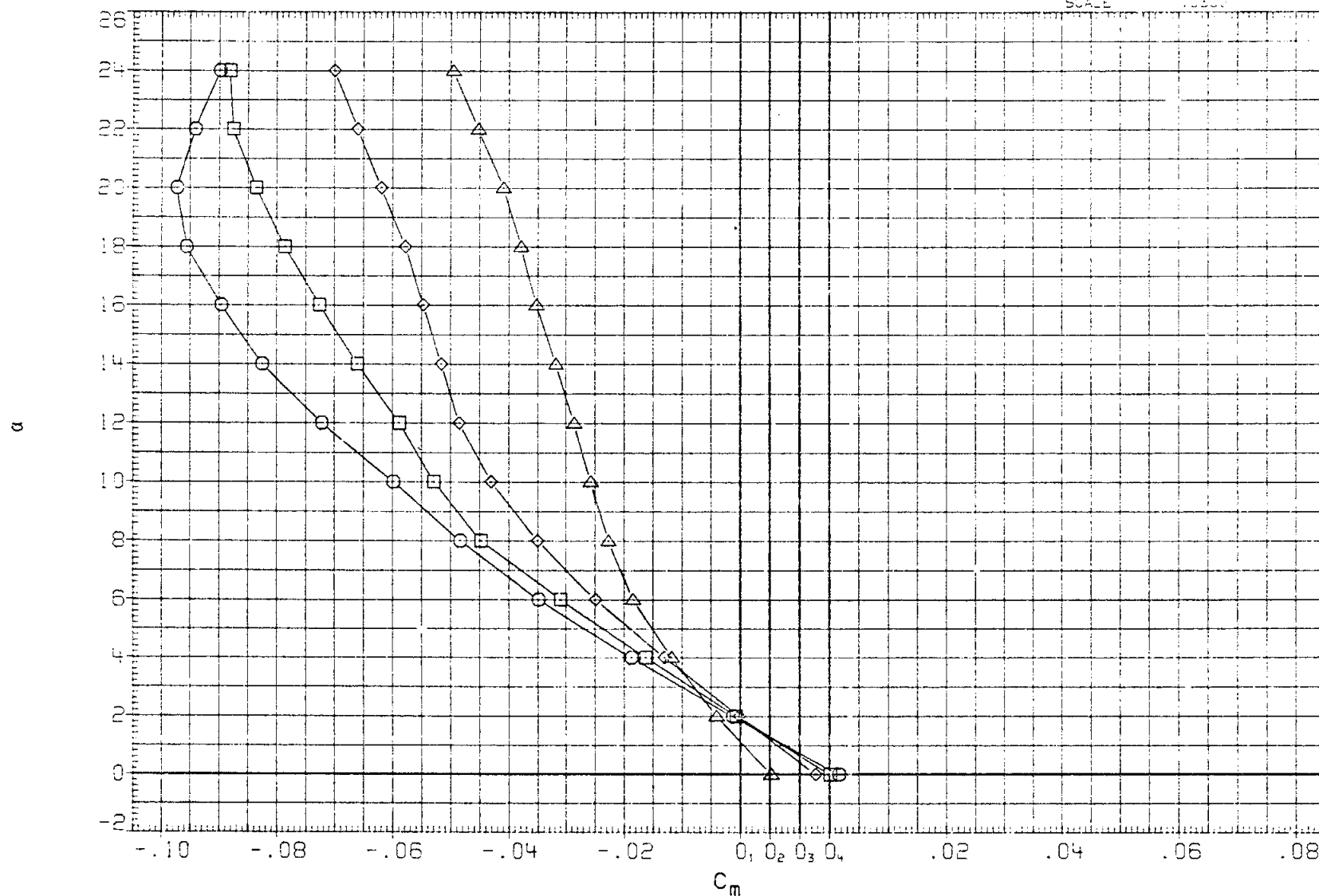


FIG. 4 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH ALPHA FOR STANDARD ORBITER

(RE7915) ARC 11-97-87-094 0A161 ORBITER

SYMBOL

MACH

PARAMETRIC VALUES

2.250  
2.500  
3.000  
3.500

BETA  
AILRON

.000  
.000

ELEVON  
BDFLAP

.000  
-7.170

REFERENCE INFORMATION

SREF 2690.0000 SQ. FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

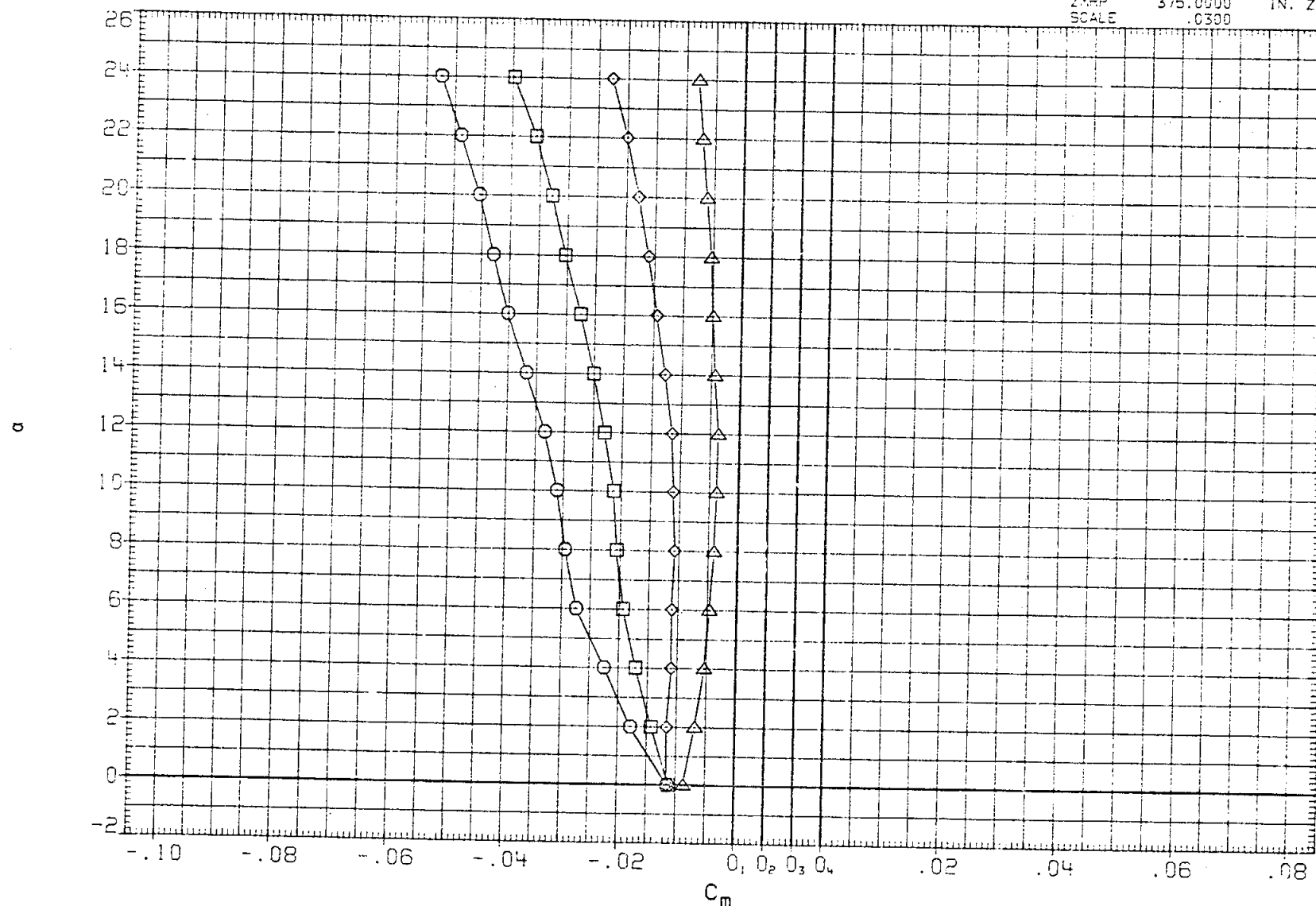


FIG. 4 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH ALPHA FOR STANDARD ORBITER

SYMBOL	WACH	PARAMETRIC VALUES			
C <sub>N</sub>	.600	BSIA	.000	ELLYON	.000
	.700	ATLON	.000	BDFLAP	-7.170
	.800				
	.900				

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LRPT	471.8000	IN.
BRPT	936.8000	IN.
XYBO	1076.6600	IN. XO
YMBB	.0000	IN. YO
ZMBB	375.0000	IN. ZO
SCALE	.0300	

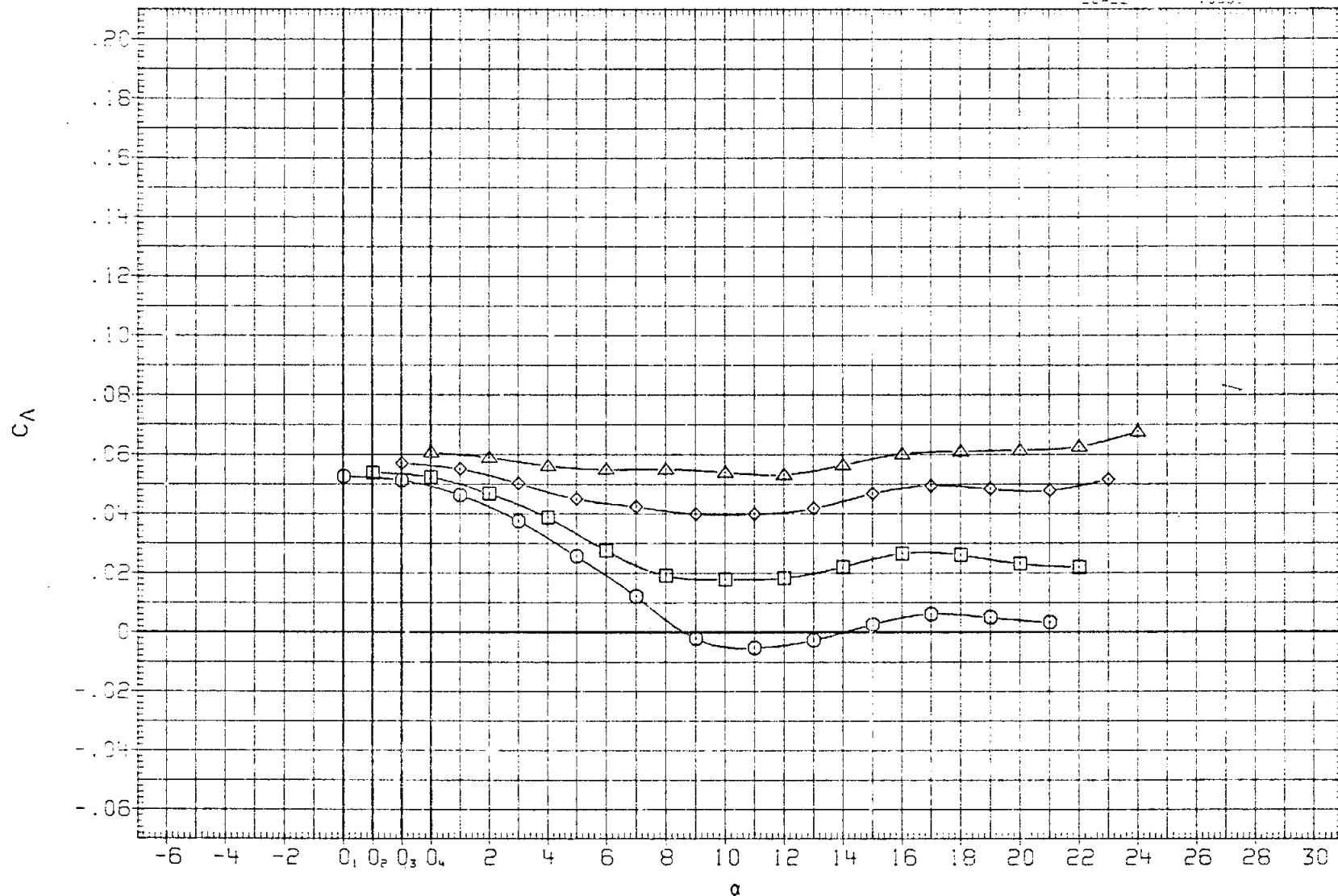


FIG. 4 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH ALPHA FOR STANDARD ORBITER

(RE7915) ARC 11-97-87-094 0A161 ORBITER

SYMBOL	MACH	BETA	PARAMETRIC	VALUES
○	.900		ELEVON	.000
□	.950	AILRON	BDFLAP	-7.170
◇	.980			
△	1.050			

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	474.6000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.03300	

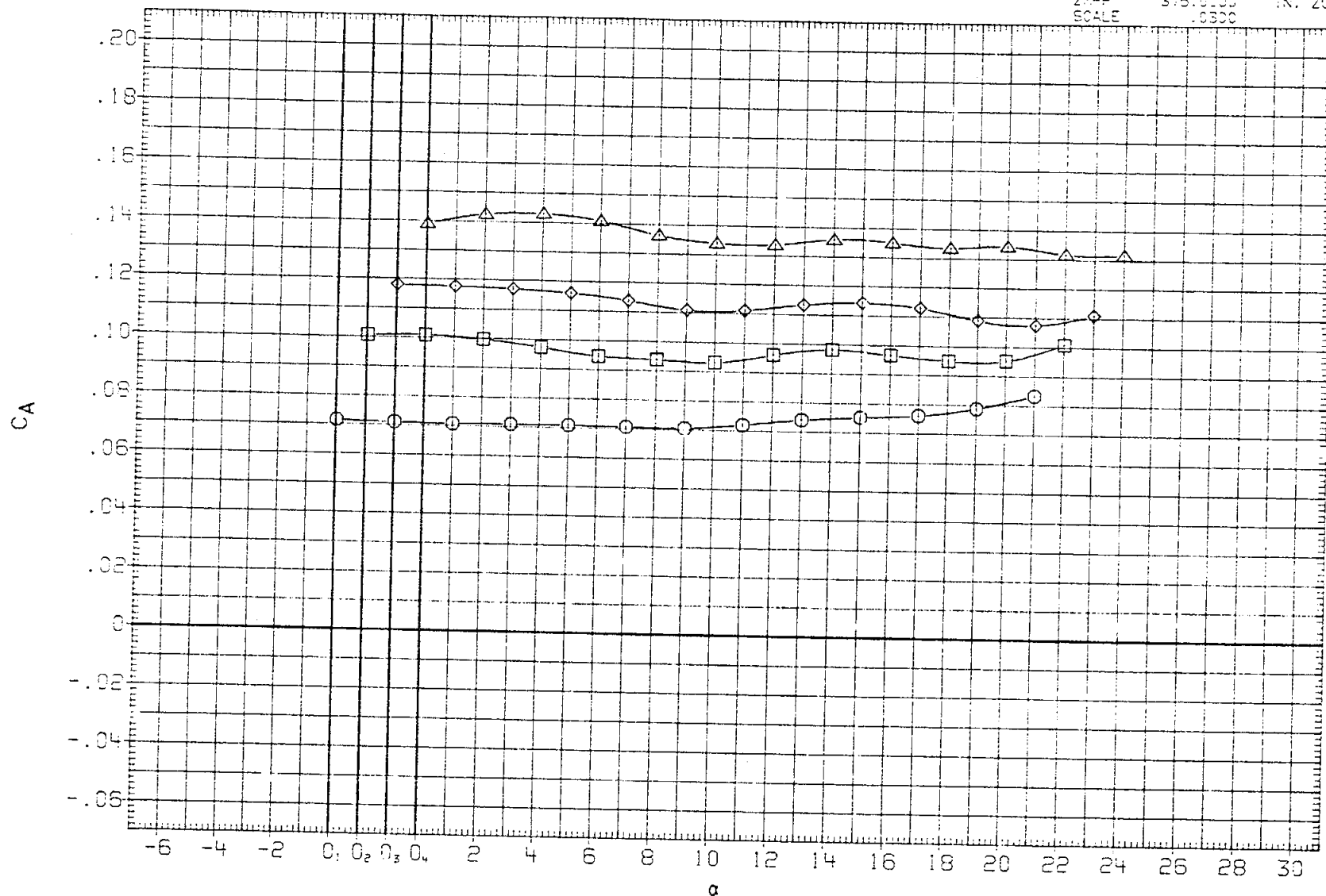


FIG. 4 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH ALPHA FOR STANDARD ORBITER

PARAMETER	VALUE	UNIT
MACH	1.100	
BETA	1.000	
ELEVON	1.000	
BDFLAP	-7.170	

REFERENCE INFORMATION	
SRPT	2890.0000 SQ. FT.
LRPT	471.6000 IN.
SRPT	958.6000 IN.
YVRP	1076.6800 IN. YO
YVRP	1000.0000 IN. YO
ZVRP	375.0000 IN. ZO
SCALE	10000

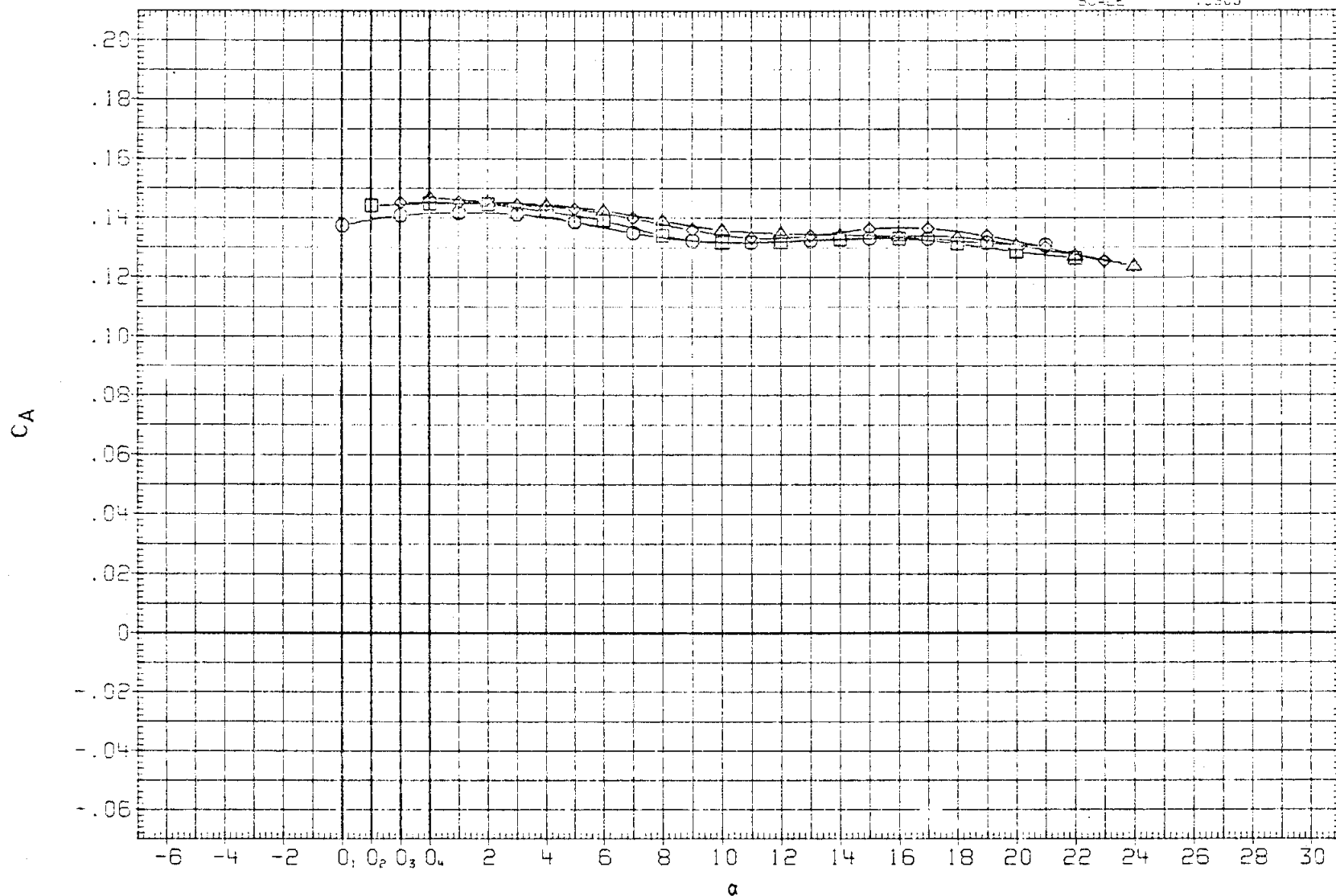


FIG. 4 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH ALPHA FOR STANDARD ORBITER



(RE7915) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	MACH	BETA	PARAMETRIC VALUES	ELEVON	BDFLAP
○	1.400	.000		.000	
□	1.550	.000			
◇	1.750	.000			
△	2.000				-7.170

REFERENCE INFORMATION		
SREF	2680.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

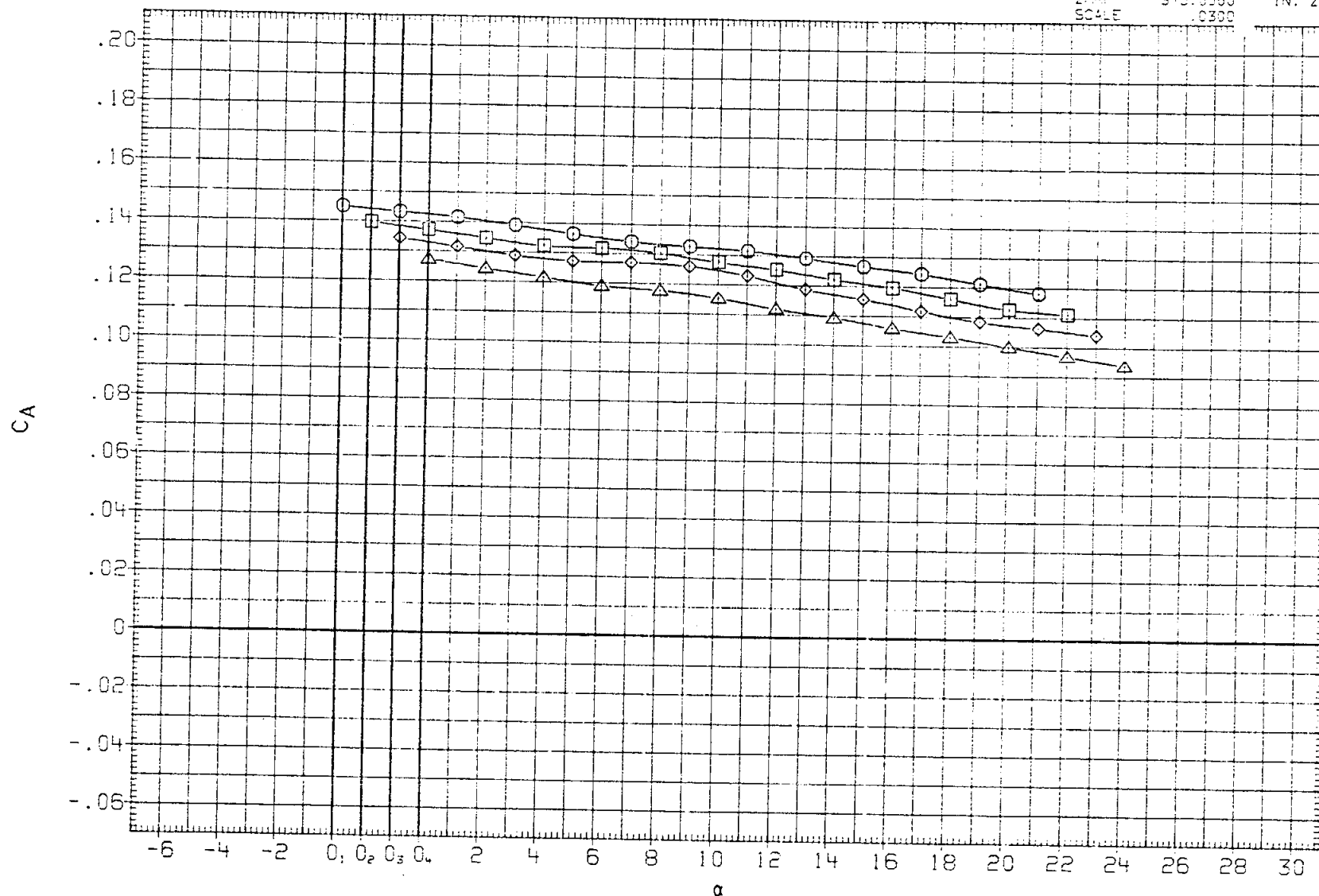


FIG. 4 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH ALPHA FOR STANDARD ORBITER

SYMBOL	MACH	BETA	PARAMETRIC VALUES	ELEVON	BDPLAP
NOIR	2.250	1.000	1.000	1.000	-7.170
	2.500	1.000	1.000	1.000	-7.170
	2.750	1.000	1.000	1.000	-7.170
	3.000	1.000	1.000	1.000	-7.170

REFERENCE INFORMATION	
SREF	2690.0000 SQ. FT.
LREF	474.8000 IN.
BREF	936.6800 IN.
XYPP	1078.6800 IN. XO
YVPP	1000.0000 IN. YO
ZMPP	375.0000 IN. ZO
SCALE	.0300

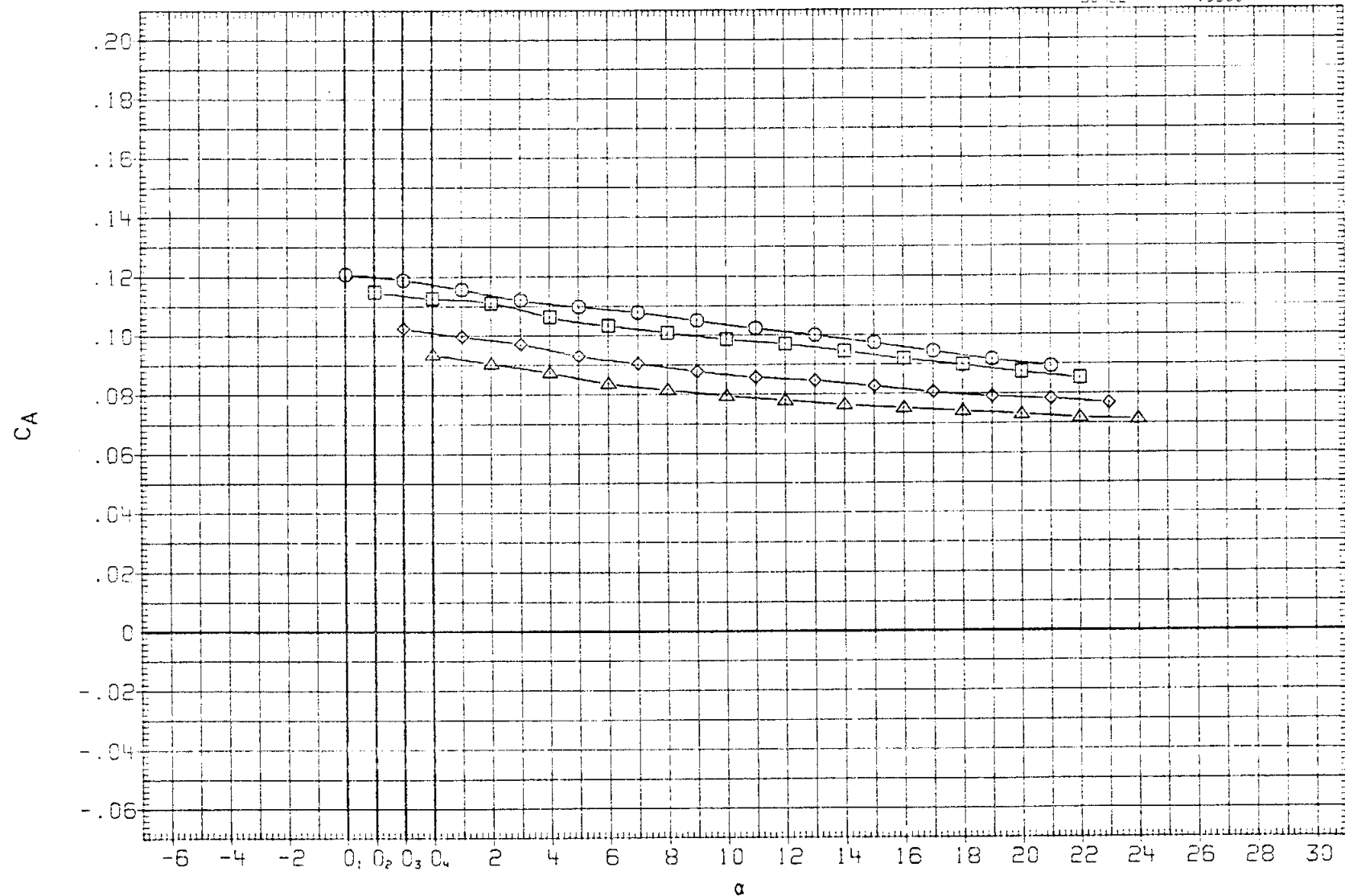


FIG. 4 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH ALPHA FOR STANDARD ORBITER

RE7913  
SYMBOL

○  
□  
◇  
△  
▽  
▽

CONFIGURATION ARC 11-97-87-094 0A161 ORBITER  
ALPHA  
-0.000  
4.000  
8.000  
12.000  
16.000  
20.000  
BETA  
-5.000  
0.000  
ELEVON  
-0.000  
-7.170  
BOFLAP

REFERENCE INFORMATION  
SREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

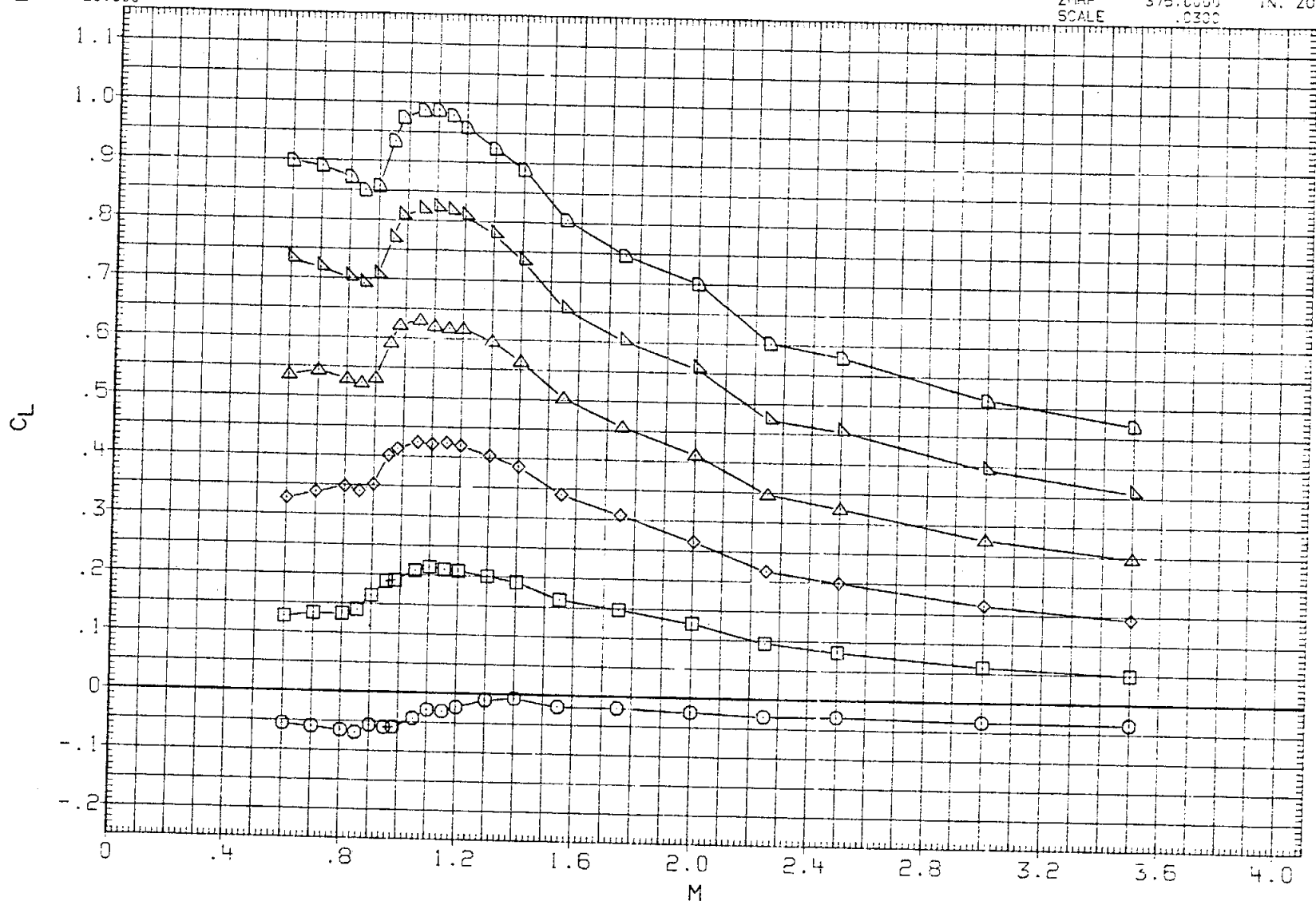


FIG. 5 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH MACH NUMBER

REF ID: A60444

CONFIGURATION ARC 11-97-67-094 CANOE ORBITER  
 ALPHA .000 BETA -5.000 ELEVON .000  
 4.000 AILRON .000 BOFLAP -7.170  
 8.000  
 12.000  
 16.000  
 20.000

REFERENCE INFORMATION  
 XREF 2690.0000 SQ.FT.  
 YREF 497.8000 IN.  
 ZREF 836.5800 IN.  
 XMRP 1076.8000 IN. X0  
 YMRP 1076.8000 IN. Y0  
 ZMRP 836.5800 IN. Z0  
 SCALE 12000

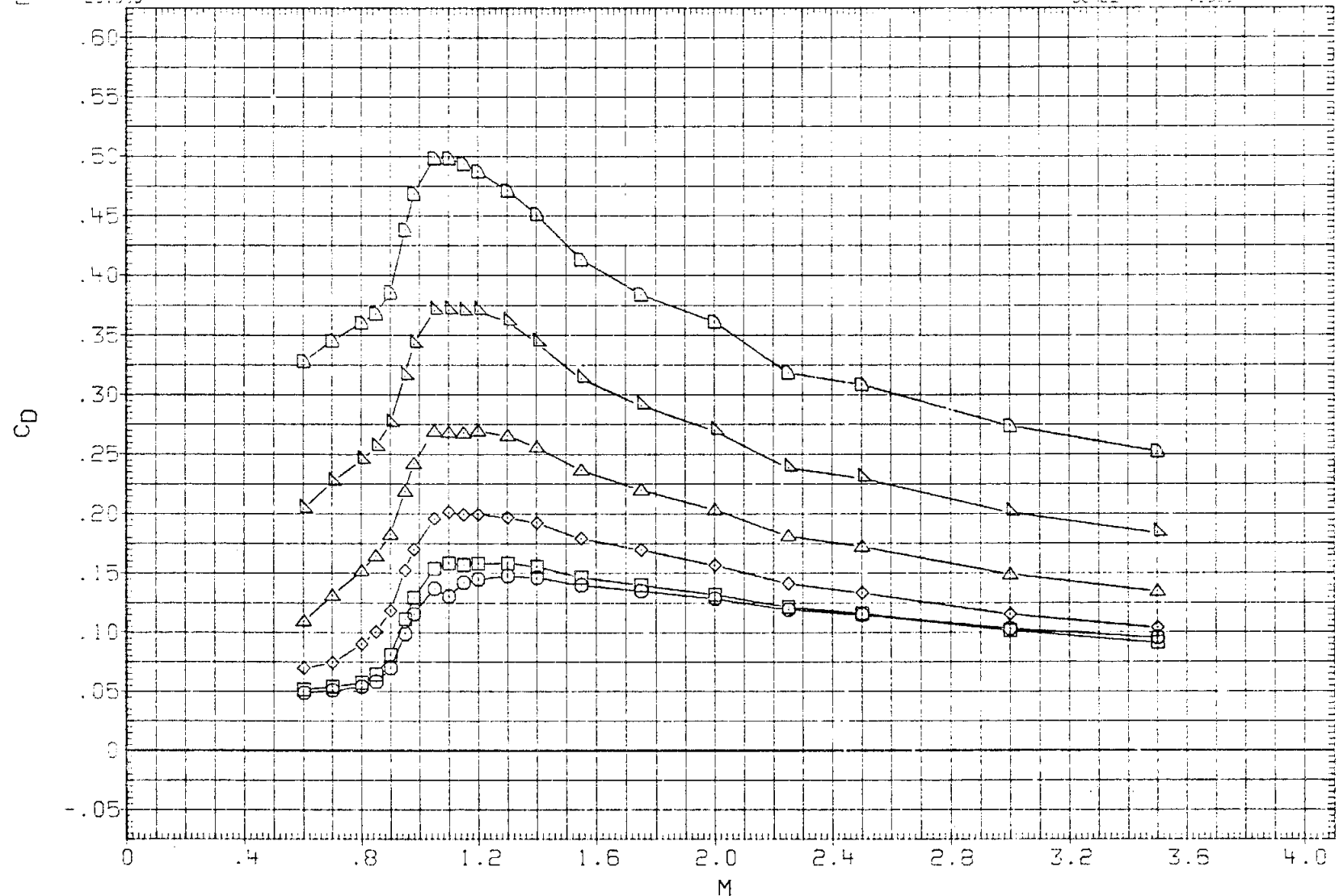


FIG. 5 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH MACH NUMBER

RET913  
SYMBOL

CONFIGURATION ARC 11-97-87-094 OA151 ORBITER  
PARAMETRIC VALUES  
ALPHA .000 BETA -5.000 ELEVON .000  
4.000 AILRON .000 BDFLAP -7.170  
8.000  
12.000  
16.000  
20.000

REFERENCE INFORMATION

SREF 2690.0000 SQ. FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

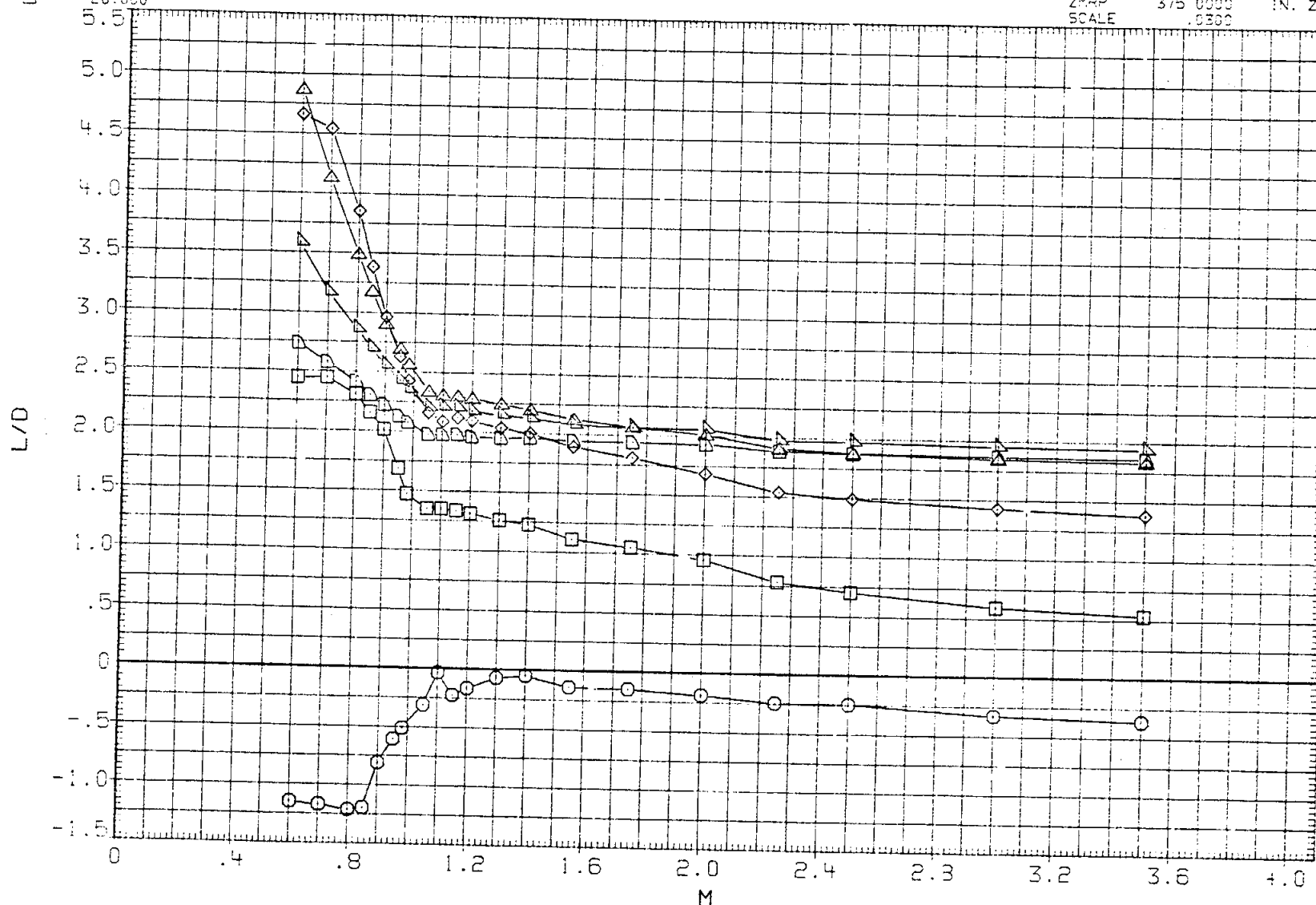


FIG. 5 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH MACH NUMBER

REF913 CONFIGURATION ARC 11-97-87-094 OA/BI ORBITER  
 SYMBOL ALPHA PARAMETRIC VALUES  
 .000 BETA -5.000 ELEVON .000  
 4.000 AILERON .00 BOFLAP -7.170  
 8.000  
 12.000  
 16.000  
 20.000

REFERENCE INFORMATION  
 SREF 2880.0000 SQ. FT.  
 LREF 474.6000 IN.  
 BREF 838.6800 IN.  
 XMRP 1078.6800 IN. XC  
 YMRP .0000 IN. YO  
 ZMRP 378.0000 IN. ZO  
 SCALE .0300

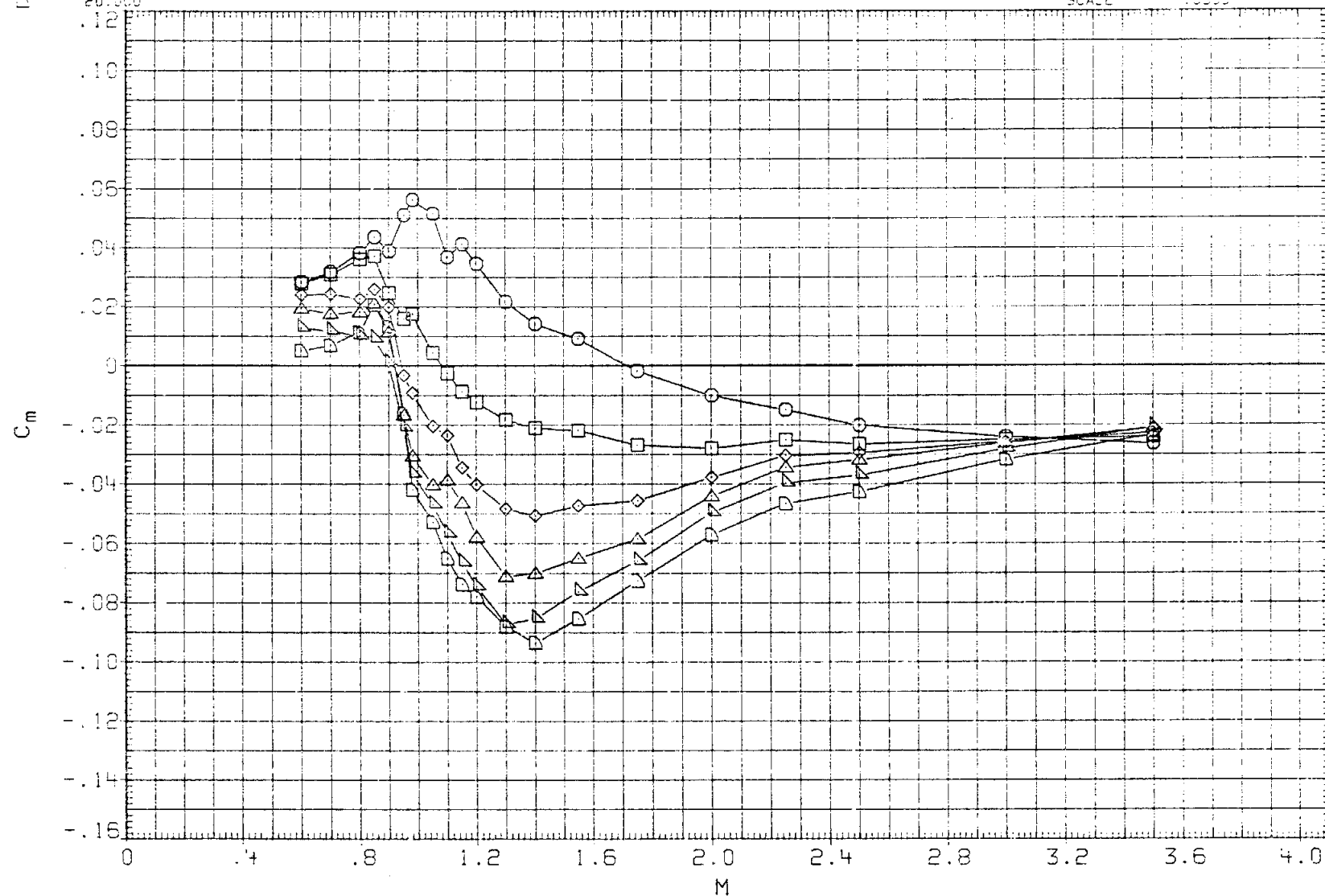


FIG. 5 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH MACH NUMBER

5E7313  
SYMBOL

CONFIGURATION ARC 11-97-87-094 0A161 ORBITER

ALPHA

PARAMETRIC VALUES

0.000	BETA	-5.000	ELEVON	.000
4.000	AILRON	.000	BDFLAP	-7.170
8.000				
12.000				
16.000				
20.000				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.6000	IN. ZO
SCALE	.0300	

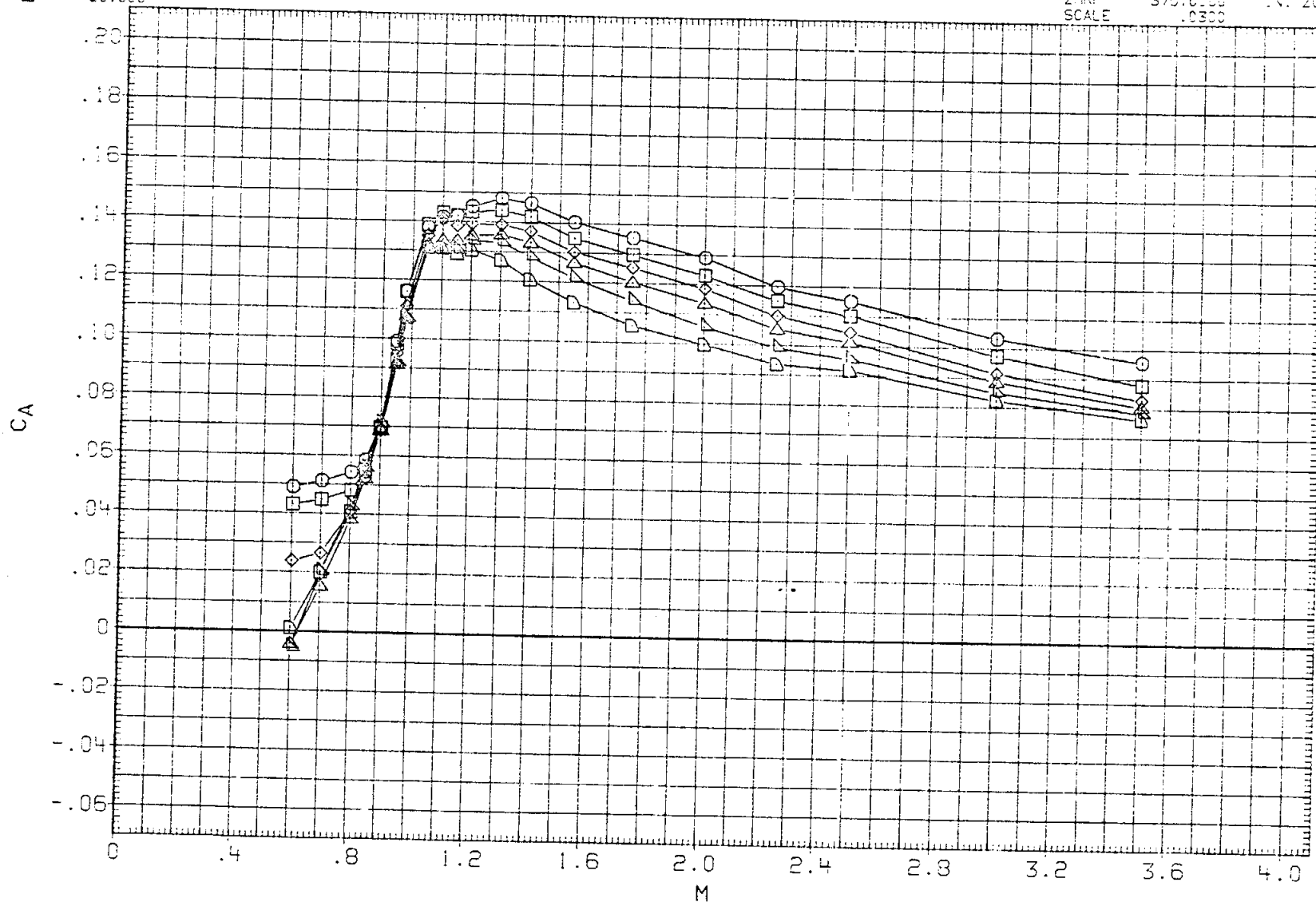


FIG. 5 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH MACH NUMBER

ELEVON	.000
BDFLAP	-7.170

## REFERENCE INFORMATION

QPLS	8880	00000	50. FT.
LFER	111	80000	IN.
BRCT	000	00000	IN.
XWRP	100	00000	IN. XO
YWRP		00000	IN. YO
ZWRP	000	00000	IN. ZO
SCALE	10000		

5

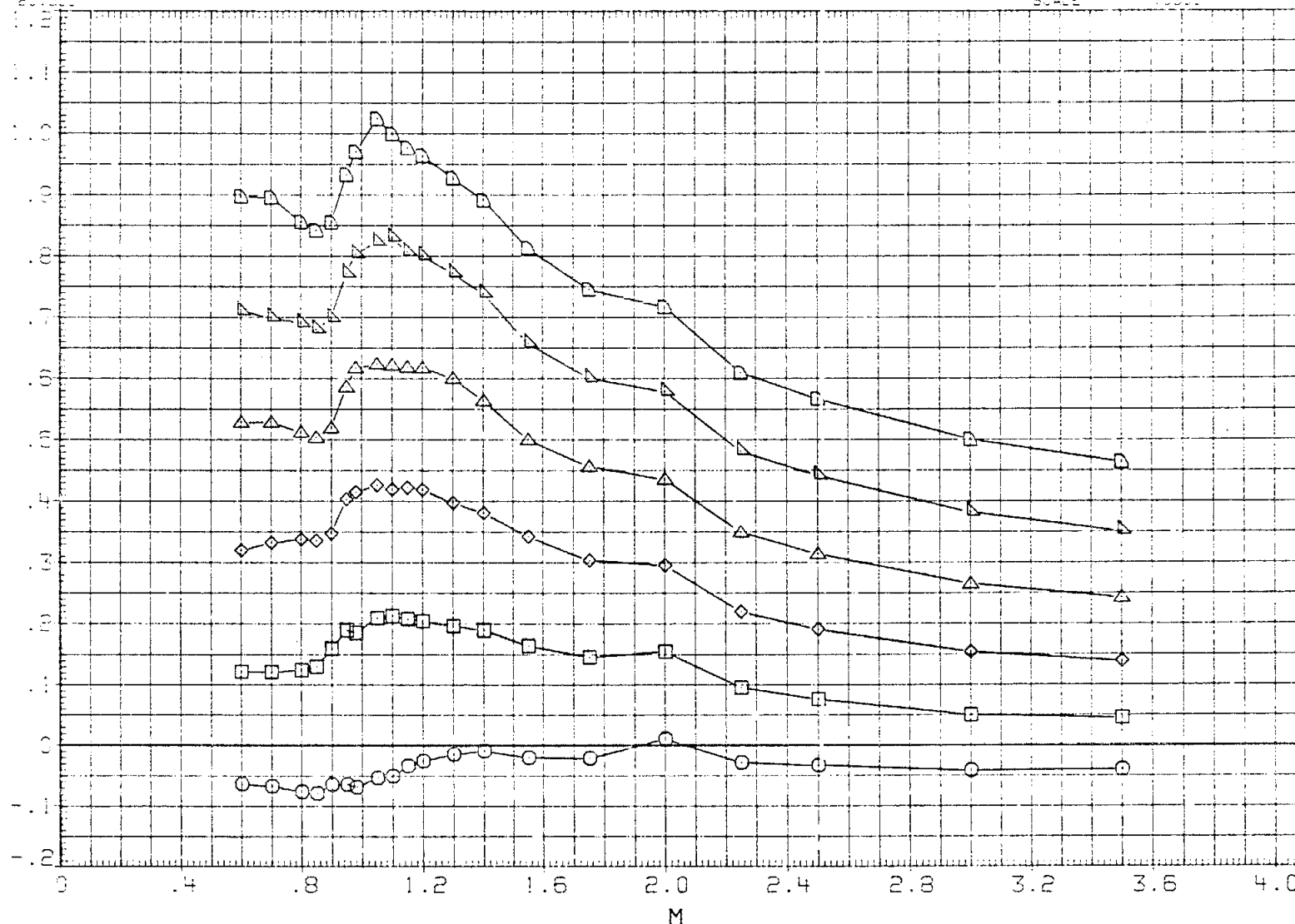


FIG. 5 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH MACH NUMBER



RE7915  
SYMBOL

○  
□  
◇  
△  
▽  
▽  
▽

CONFIGURATION ARC 11-97-87-094 CA161 ORBITER

ALPHA

PARAMETRIC VALUES

.000	BETA	.000	ELEVON	.000
4.000	AILRON	.000	BDCLAP	-7.170
8.000				
12.000				
16.000				
20.000				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. X0
YMPP	.0000	IN. Y0
ZMPP	375.0000	IN. Z0
SCALE	.0300	

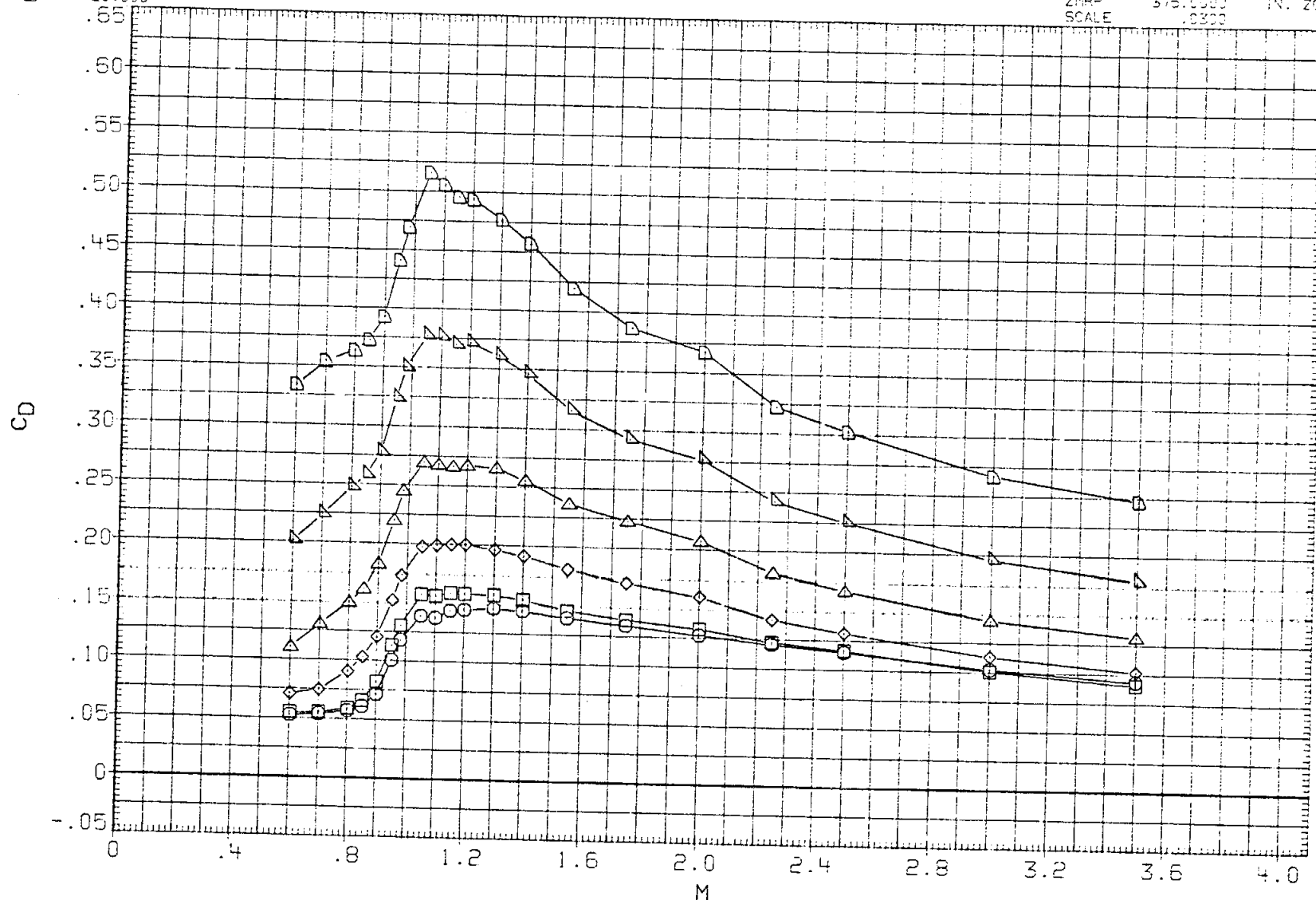


FIG. 5 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH MACH NUMBER

RET915 CONFIGURATION ARC 11-27-87-004 CASE1 OPBITER  
 SYMBOL ALPHA PARAMETRIC VALUES  
 1.000 BEYA .000 ELEVON .000  
 4.000 AILRON .000 BOFLAP -7.170  
 8.000  
 12.000  
 16.000  
 20.000

REFERENCE INFORMATION  
 SREF 2690.0000 62.57  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMPP 1076.8800 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE 10000

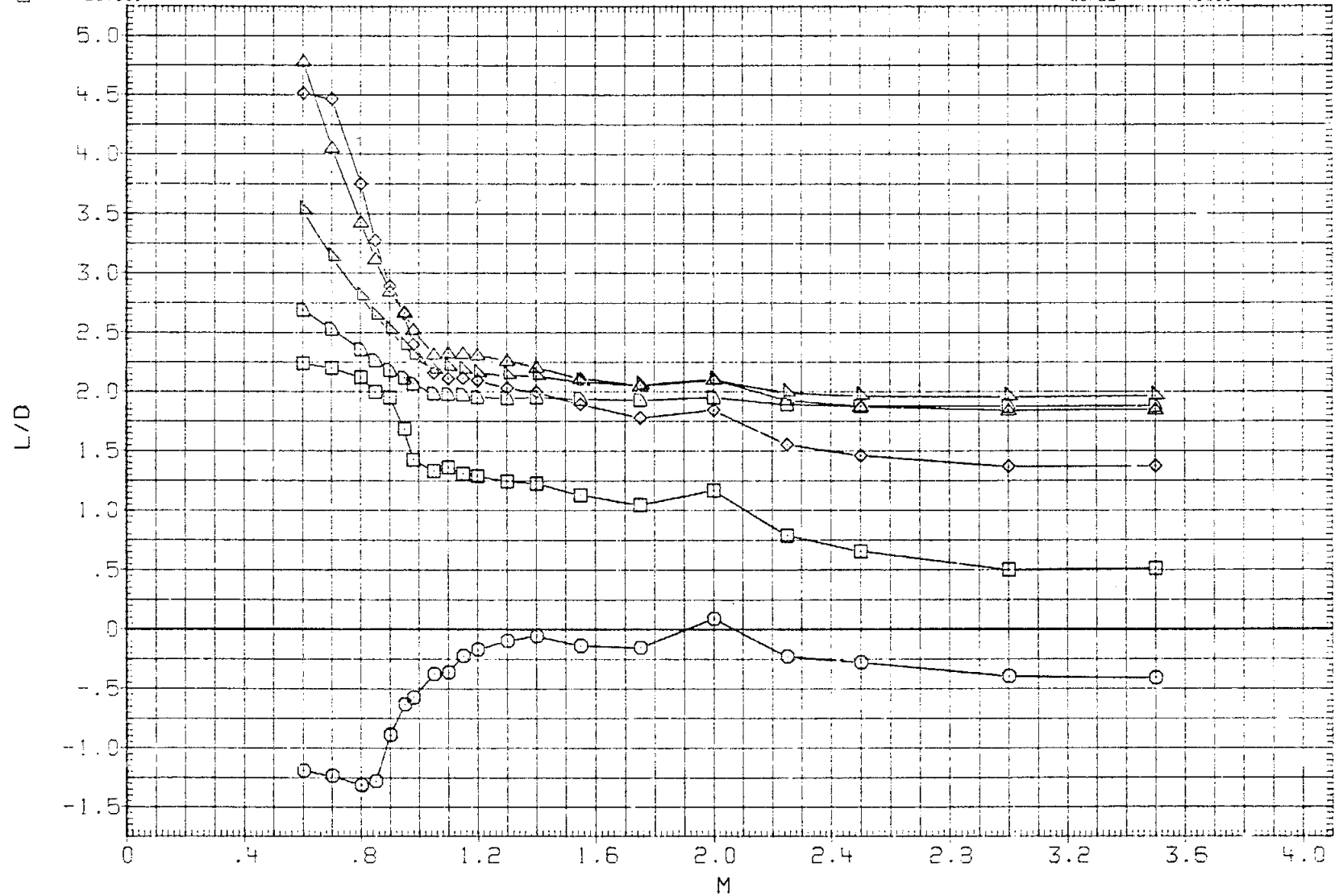


FIG. 5 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH MACH NUMBER

RE7915  
SYMBOL

CONFIGURATION ARC 11-97-87-094 0A161 ORBITER

PARAMETRIC VALUES			
ALPHA	BETA	ELEVON	BDCLAP
.000	.000	.000	.000
4.000	AILRON	.000	-7.170
8.000			
12.000			
16.000			
20.000			

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6500	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

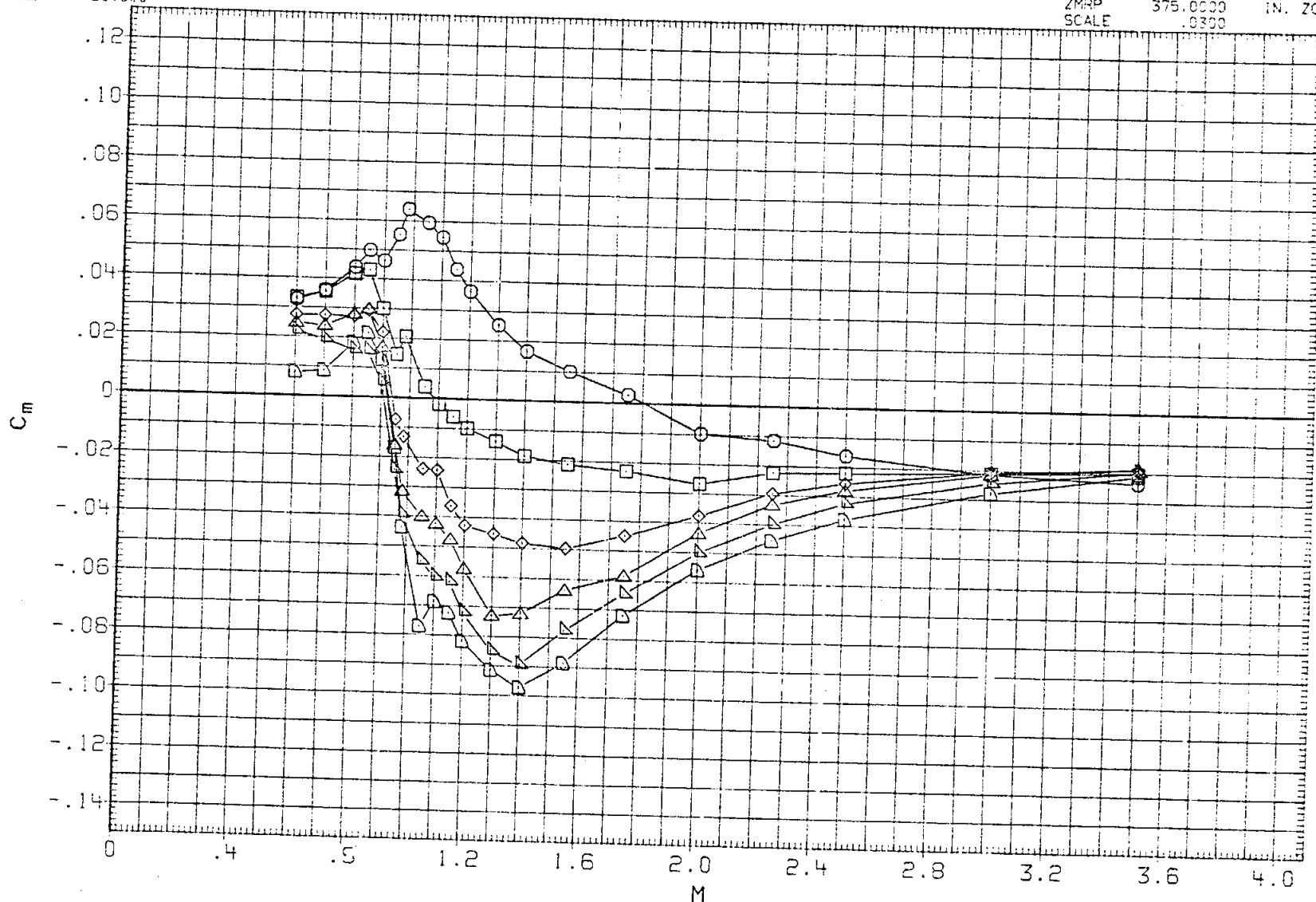


FIG. 5 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH MACH NUMBER

01/14/74

CONFIGURATION ARC 11-87-87-094 0A161 ORBITER

PARAMETER VALUES			
ALPHA	BETA	ELEVON	SCALE
0.000	0.000	0.000	0.000
4.000	AILRON	BDCLAP	-7.170
8.000			
12.000			
16.000			
20.000			

REFERENCE INFORMATION

REF	2880.0000	50.00
REF	475.0000	IN.
REF	978.0000	IN.
XMPP	1076.0000	IN. YO
YMPP	1076.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	1.0000	

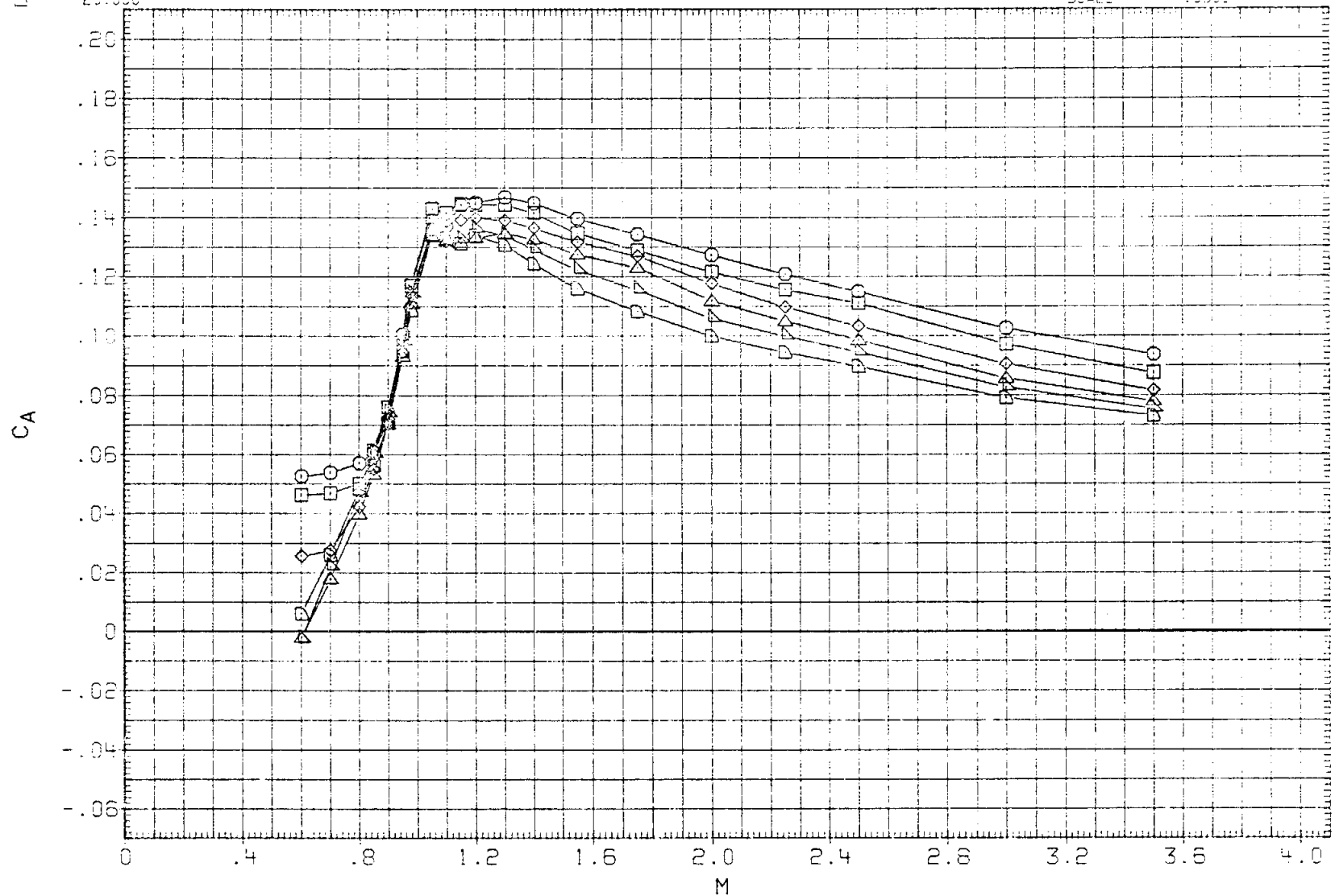


FIG. 5 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH MACH NUMBER

RE7917

SYMBOL

D  
 △  
 ◇  
 □  
 ○

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER

PARAMETRIC VALUES			
ALPHA	BETA	5.000	ELEVON
.000	AILRON	.000	ZDFLAP
4.000			-7.170
8.000			
12.000			
16.000			
20.000			

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. X0
YMPP	.0000	IN. Y0
ZMPP	375.0000	IN. Z0
SCALE	.0300	

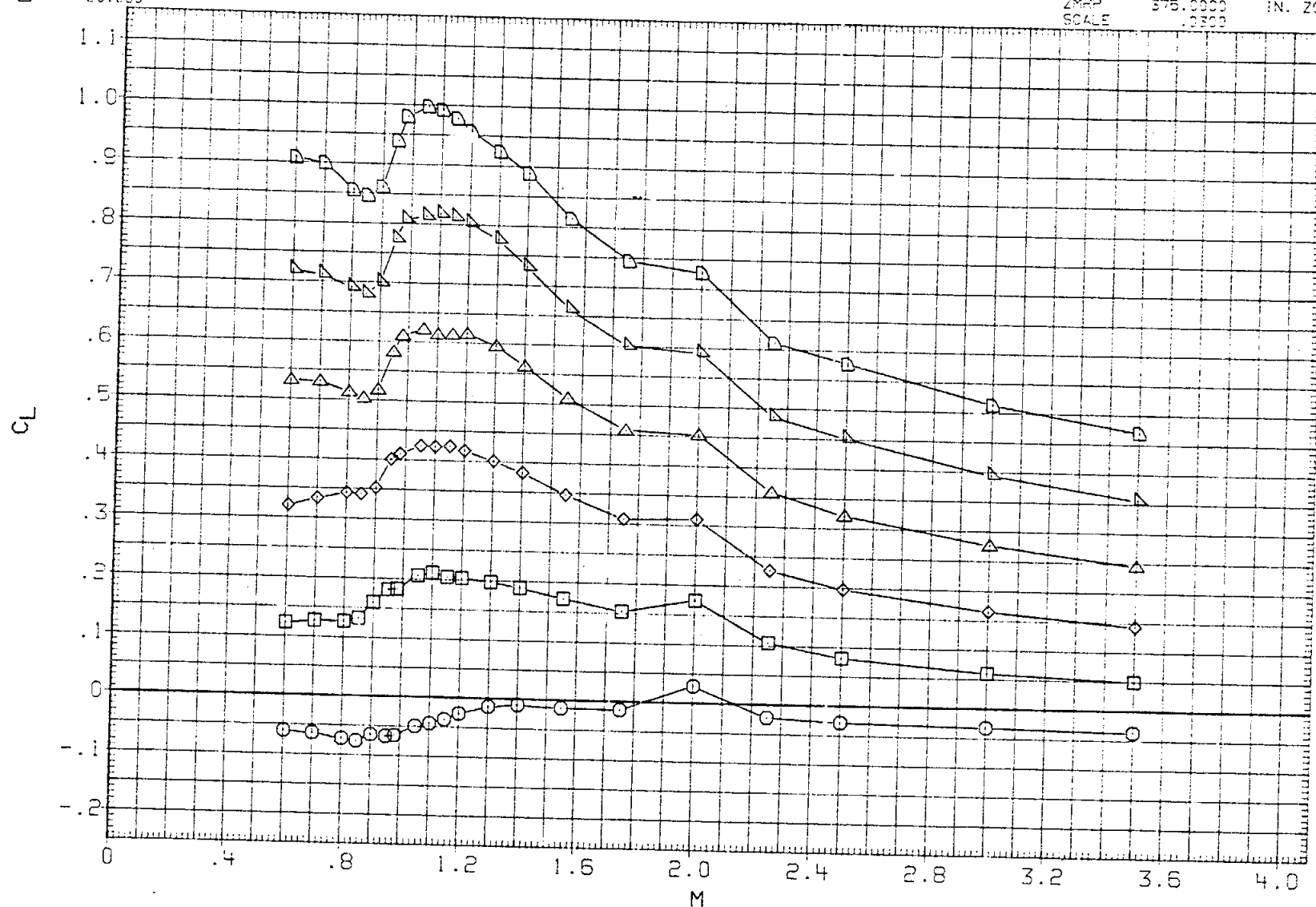
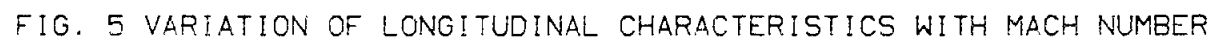


FIG. 5 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH MACH NUMBER



RE7917  
SYMBOL

CONFIGURATION ARC 11-97-87-094 0A161 ORBITER

ALPHA

PARAMETRIC VALUES

.000	BETA	5.000	ELEVON	.000
4.000	AILRON	.000	BDFLAP	-7.170
8.000				
12.000				
16.000				
20.000				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XYRP	1076.5500	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

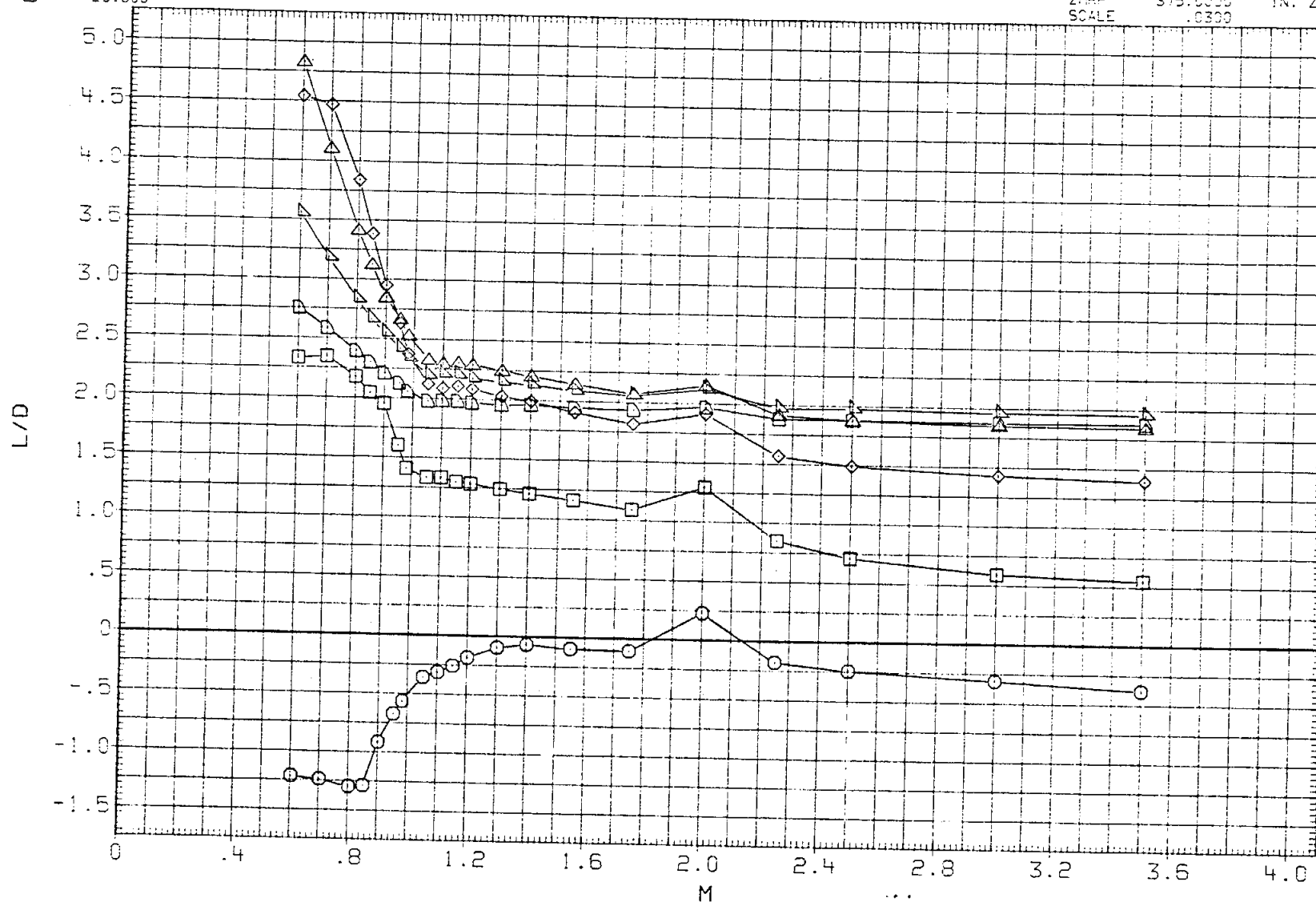


FIG. 5 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH MACH NUMBER

RE7917 CONFIGURATION ARE 11-97-87-094 0A161 ORBITER  
 SYMBOL ALPHA PARAMETRIC VALUES  
 0.000 BETA 5.000 ELEVON 1.000  
 4.000 AILRON 1.000 BOFLAP -7.175  
 8.000  
 12.000  
 16.000  
 20.000

REFERENCE INFORMATION  
 GREF 2590.0000 80.00  
 LREF 474.8000 IN  
 BREF 938.8000 IN  
 XREF 1078.8000 IN X0  
 YREF 1078.8000 IN Y0  
 ZREF 378.1000 IN Z0  
 SCALE 1.0000

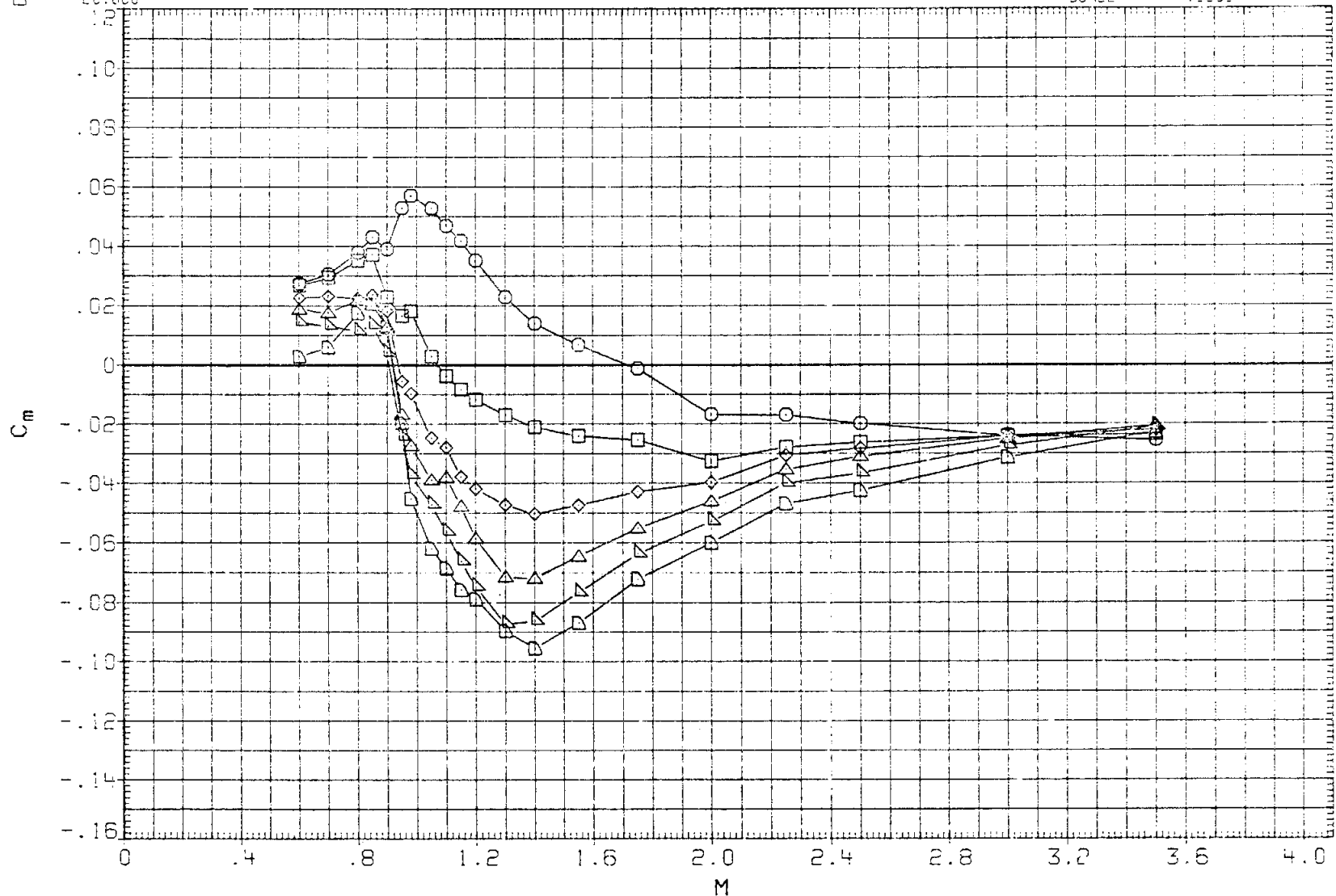


FIG. 5 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH MACH NUMBER



RET9:7  
SYMBOL

CONFIGURATION ARC 11-97-87-094 0A161 ORBITER

ALPHA

PARAMETRIC VALUES

.000	BETA	5.000	ELEVON	.000
4.000	AILRON	.000	BDFLAP	-7.170
8.000				
12.000				
16.000				
20.000				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

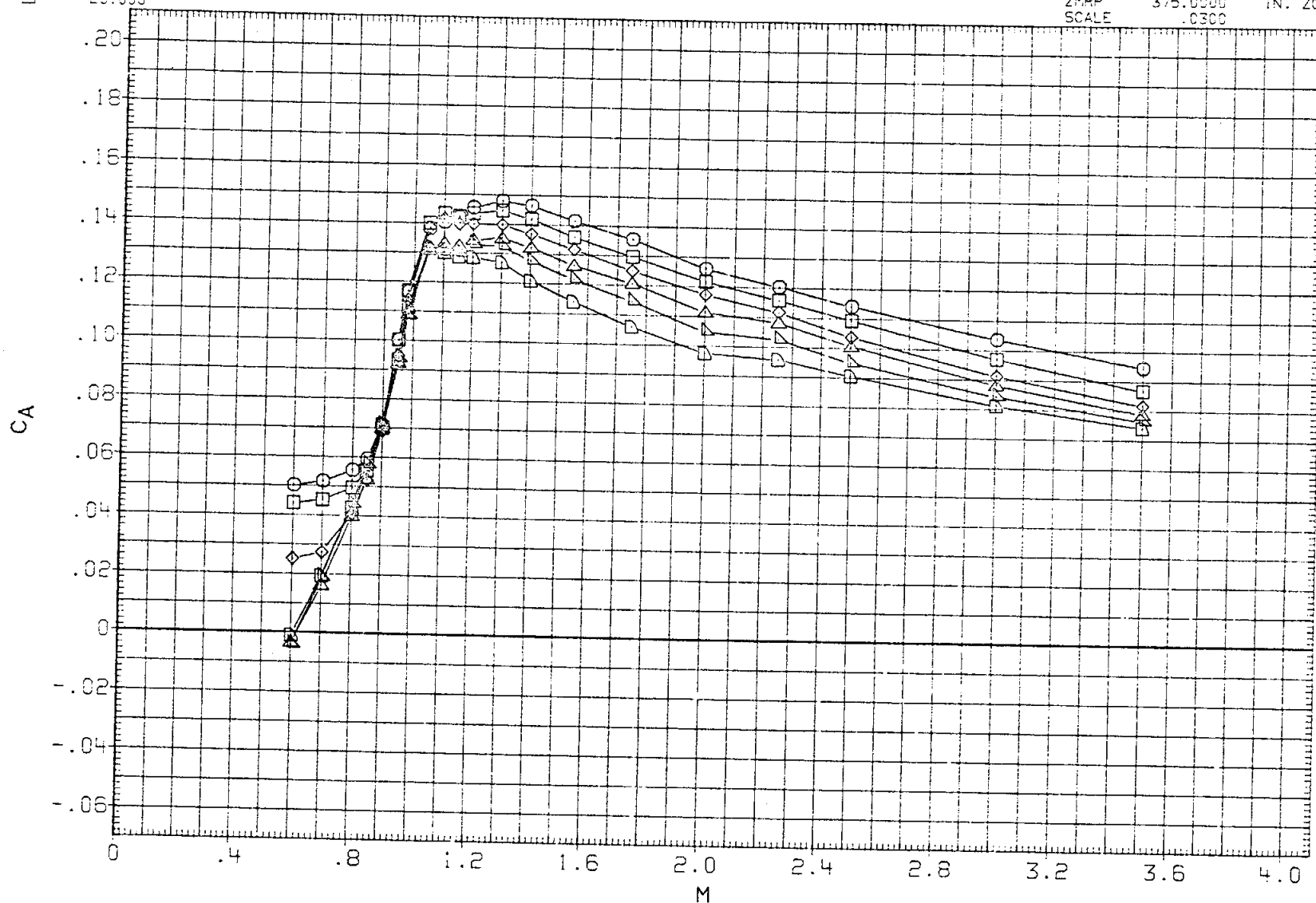


FIG. 5 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH MACH NUMBER

PETRIZ CONFIGURATION ARC 11 07-07-00N 04161 ORBITER  
 SYMBOL MACH PARAMETRIC VALUES  
 .600 BETA -5.000 ELEVON .000  
 .800 AILRON .000 BOFLAP -7.170  
 .900  
 .950  
 .980  
 1.050

REFERENCE INFORMATION  
 SPOT 2690.0000 SQ. FT.  
 LREF 575.8000 IN.  
 BREF 936.6800 IN.  
 XMPP 1076.6800 IN. YO  
 YMP 100000 IN. YO  
 ZMP 375.0000 IN. ZO  
 SCALE .0300

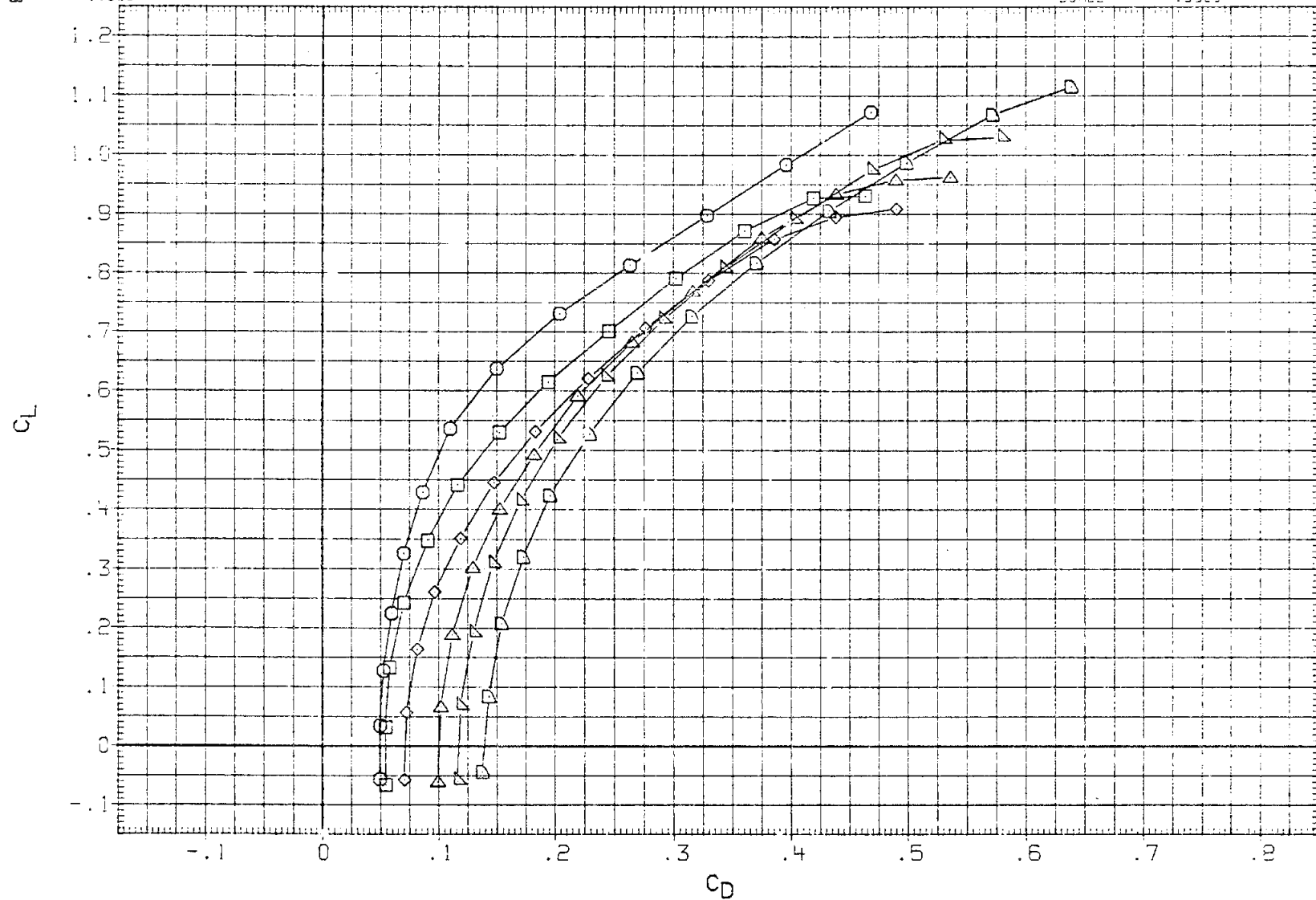


FIG. 5 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH MACH NUMBER



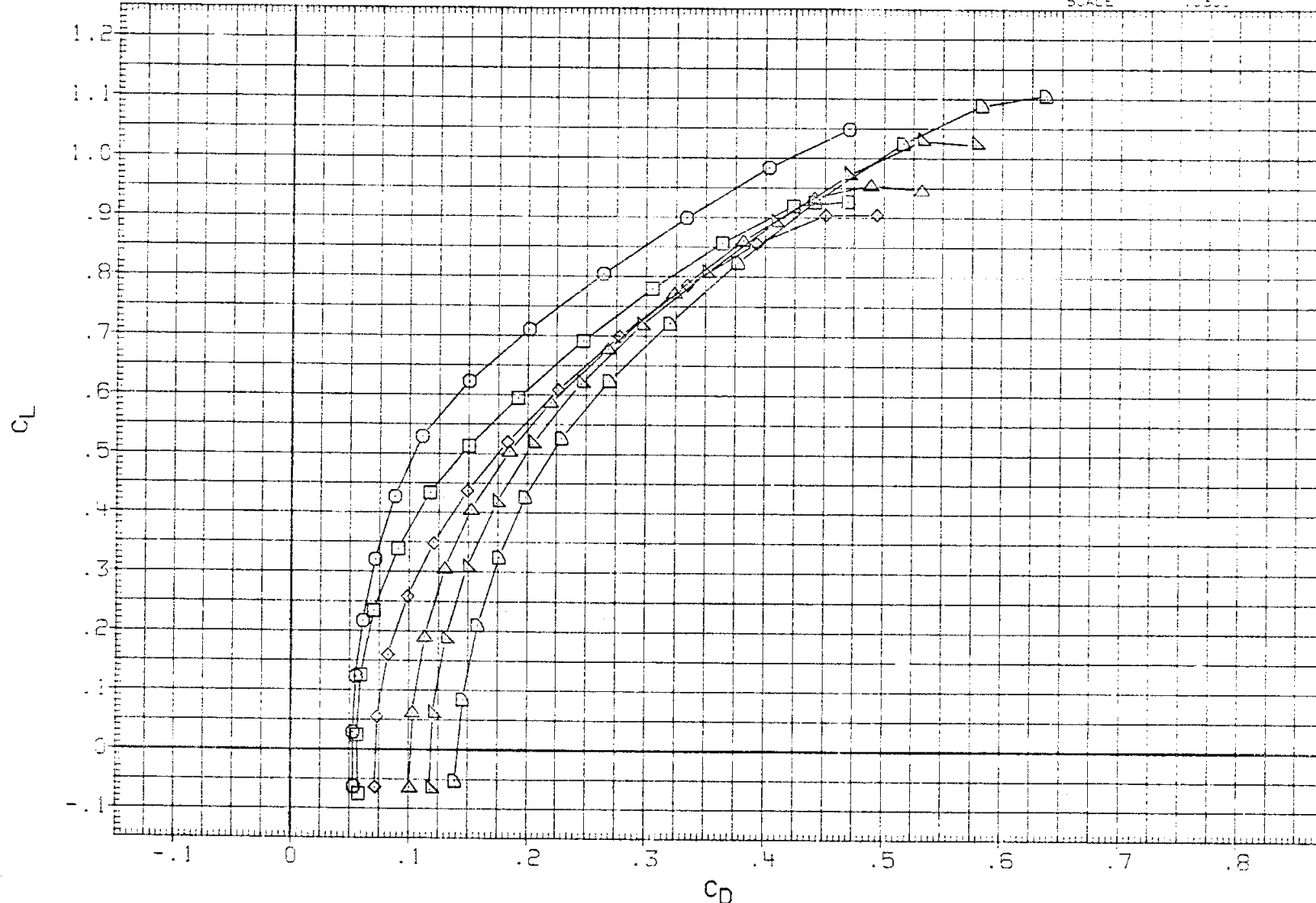


FIG. 5 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH MACH NUMBER

RE7915  
SYMBOL

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER  
MACH  
PARAMETRIC VALUES  
BETA .000 ELEVON .000  
AILRON .000 BDFLAP -7.170

REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0390

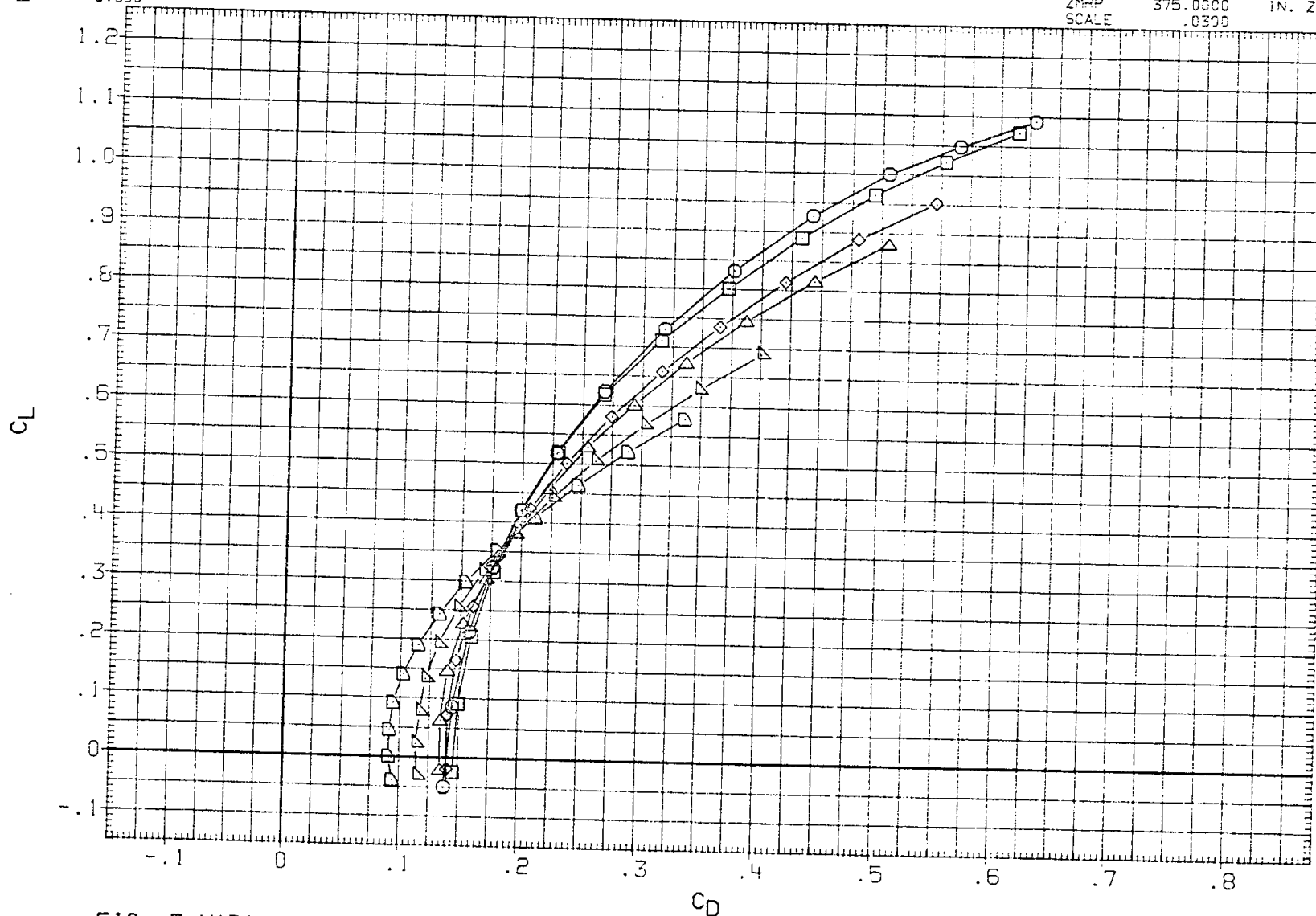


FIG. 5 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH MACH NUMBER

REF917 CONFIGURATION ARC 11-97-87-094 CASE: ORBITER  
 SYMBOL MACH PARAMETRIC VALUES  
 1.600 BETA 5.000 ELEVON 1.000  
 1.800 ALLRON 1.000 BOFLAP -7.170  
 1.900  
 1.950  
 1.980  
 1.000

REFERENCE INFORMATION  
 SWPT 2590.0000 IN. FT  
 LPET 405.8000 IN.  
 BRPT 936.6800 IN.  
 YMRP 1076.6800 IN. XC  
 YMRP 10000 IN. YC  
 ZMRP 375.0000 IN. ZC  
 SCALE 1.0000

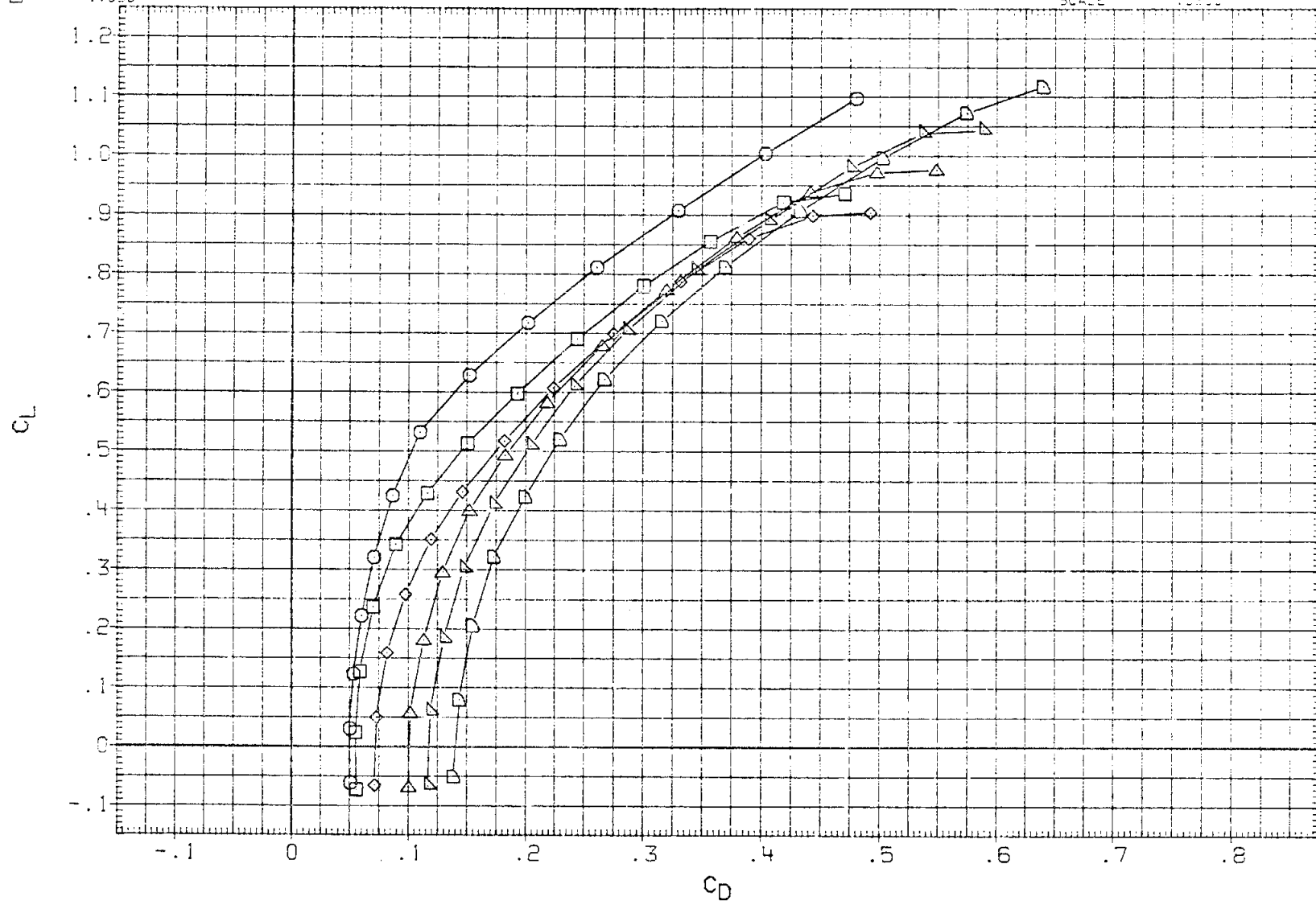


FIG. 5 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH MACH NUMBER

RE7917  
SYMBOL

○  
□  
◇  
△  
▽  
◇  
△  
▽  
◇  
△  
▽

CONFIGURATION ARC 11-97-87-094 04161 ORBITER

MACH

PARAMETRIC VALUES

1.100	BETA	5.000	ELEVON	.000
1.200	AILRON	.000	BOFLAP	-7.170
1.550				
1.750				
2.500				
3.500				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

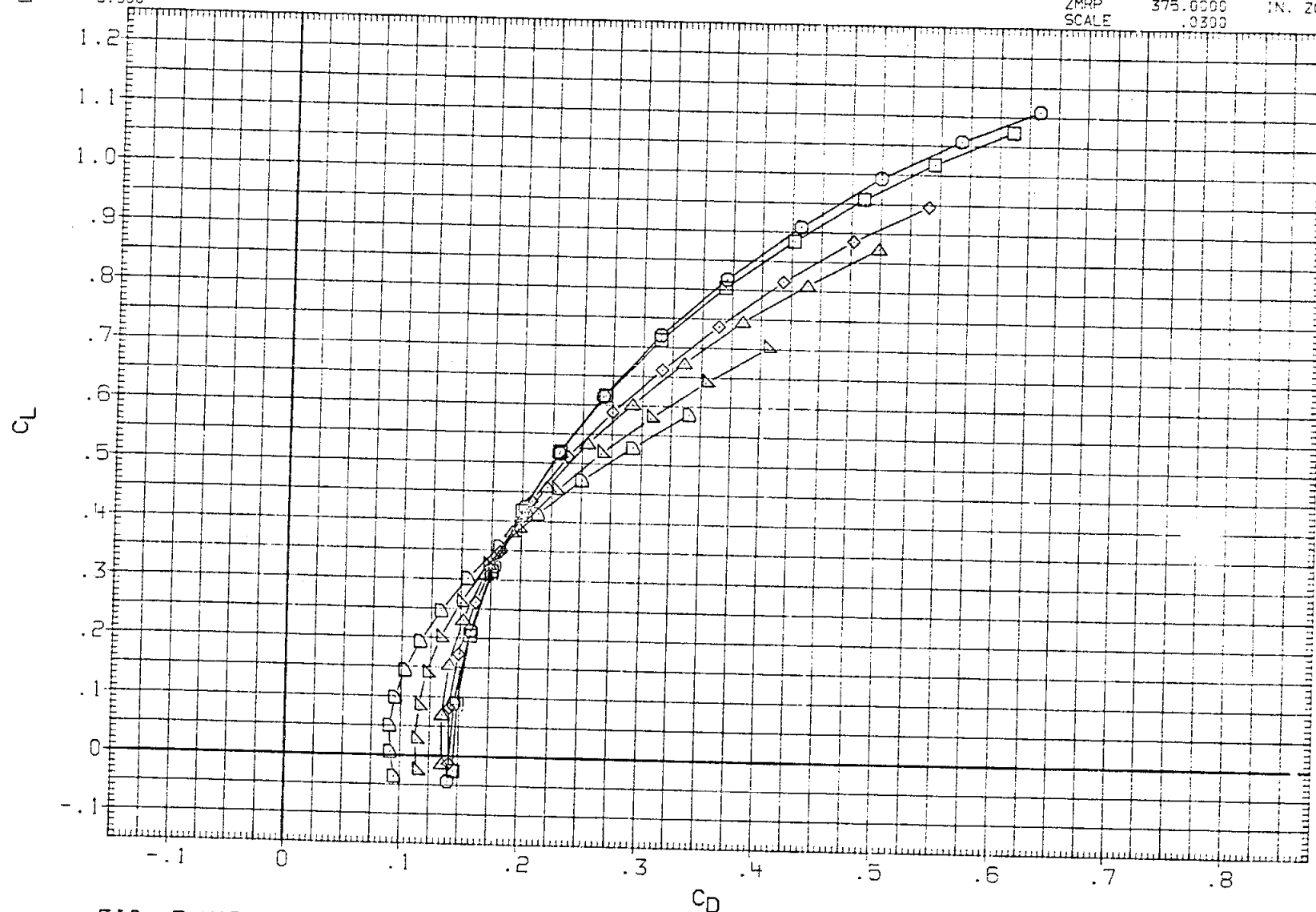


FIG. 5 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH MACH NUMBER

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	BETA	OE7815	AILRON	OE7820	AILRON	OE7825	AILRON	OE7830	AILRON	REFERENCE INFORMATION
○	.000			.000									SREF 2690.0000 SQ.FT.
□	4.000	ELEVON	.000	EDFLAP	-7.170								UREF 474.8000 IN.
◇	8.000												BREF 635.6800 IN.
△	12.000												XVSP 1075.6800 IN. XC
▽	16.000												YMSP 0.0000 IN. YC
◇	20.000												ZVSP 375.0000 IN. ZC
													SCALE .0000

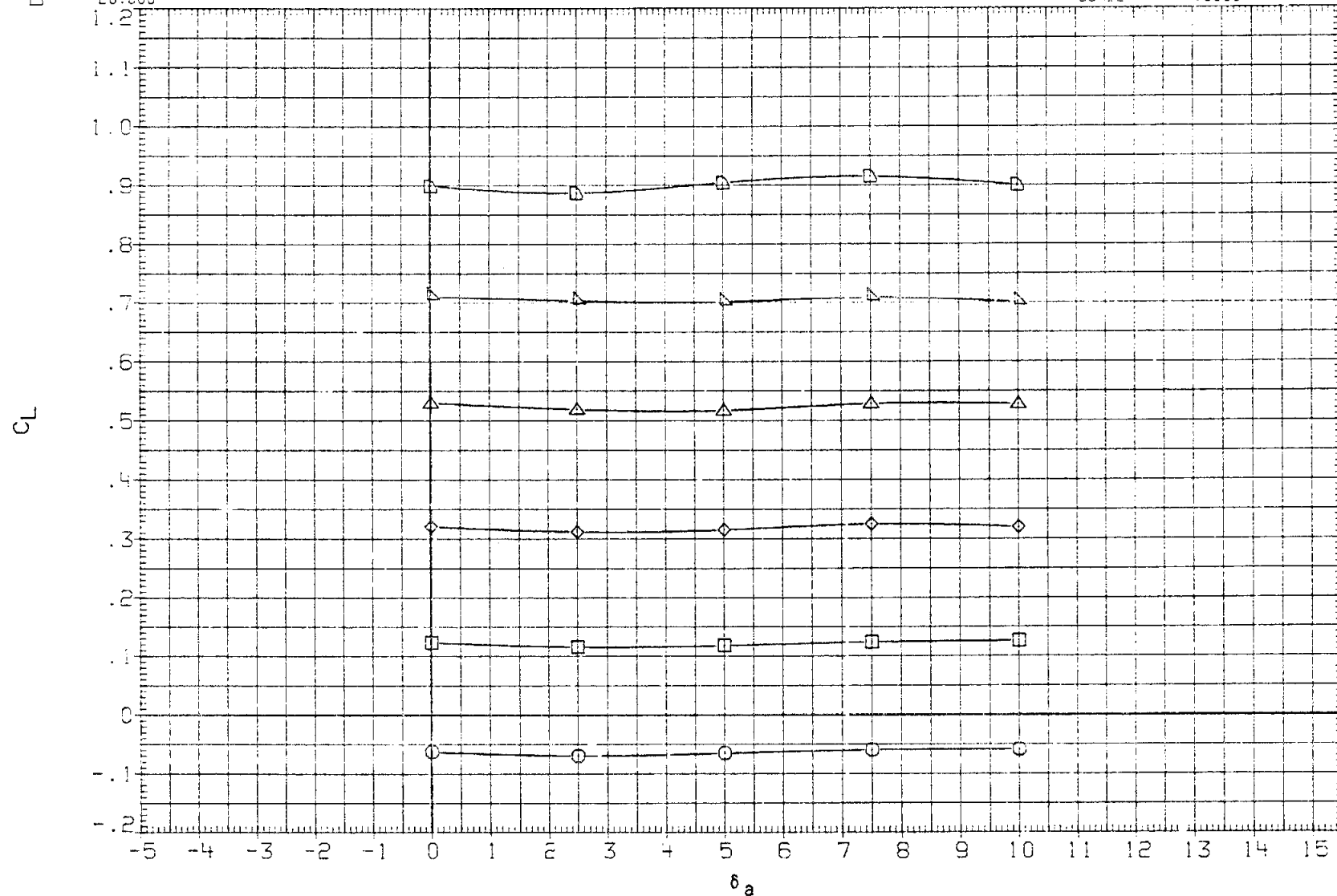


FIG. 6 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH AILERON



(QE7815) ARC 11-97-87-094 0A161 ORBITER

ARC 11-97-87-094 UA161 ORBITER													
SYMBOL	ALPHA	PARAMETRIC VALUES				DATASET	AILRON	DATASET	AILRON	REFERENCE INFORMATION			
○	.000	MACH	.900	BETA	.000	CE7815	.000	RE7820	2.500	SREF	2690.0000	SO. FT.	
□	4.000	ELEVON	.000	BDFLAP	-7.170	RE7825	5.000	RE7830	7.500	LREF	474.8000	IN.	
△	9.000					RE7835	10.000			BREF	936.6900	IN.	
◇	12.000									XYRP	1076.6900	IN.	XO
○	16.000									YMPP	.0000	IN.	YO
○	20.000									ZMRP	375.0000	IN.	ZO
	1.2									SCALE	.0300		

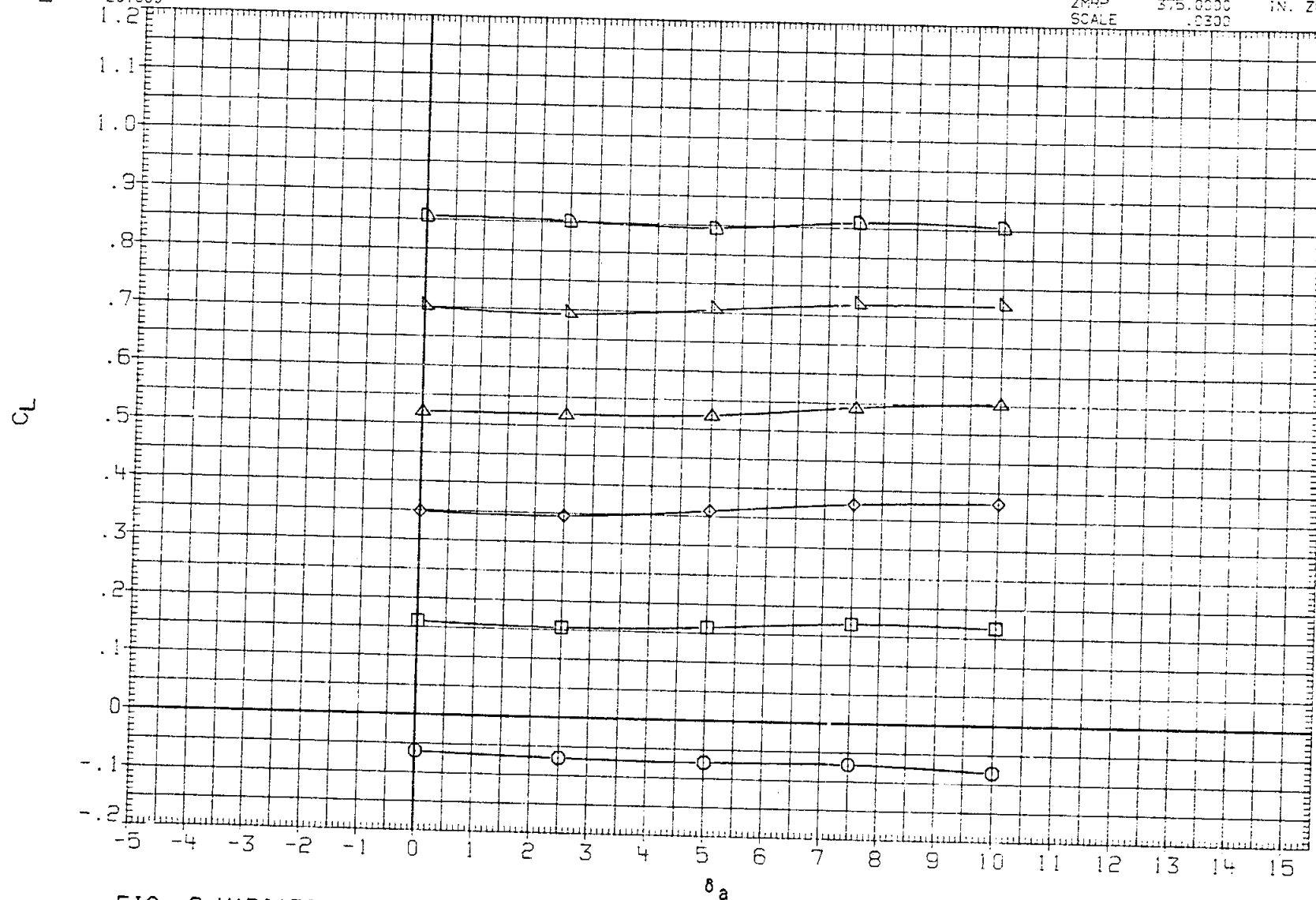


FIG. 6 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH AILERON

SYMBOL	PARAMETRIC VALUES			DATASET		AILRON		DATASET		AILRON		REFERENCE INFORMATION	
	.000	MACH	.980	BETA	.000	QE7815	.000	RE7820	2.500	SREF	2690.0000	SQ.FT.	
	4.000	ELEVON	.000	BDFLAP	-7.170	RE7825	5.000	RE7830	7.500	LREF	404.8000	IN.	
	8.000									BREF	935.6000	IN.	
	12.000									YMREF	1075.6800	IN. XO	
	16.000									YMREF	.0000	IN. YO	
	20.000									ZMREF	375.0000	IN. ZO	
										SCALE	.0200		

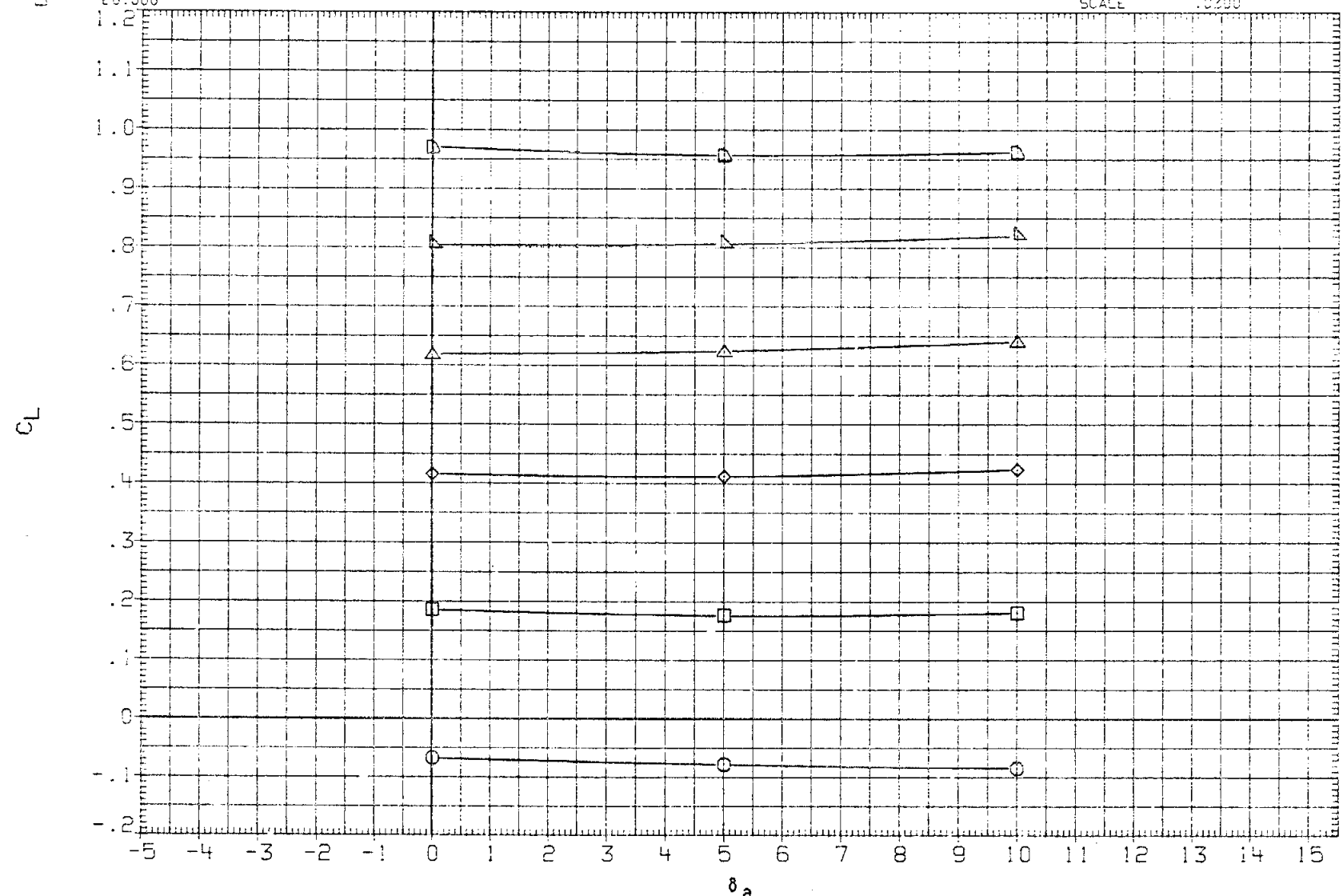


FIG. 6 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH AILERON

(QE7815) ARC 11-97-87-094 OA161 ORBITER

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

AILRON

DATASET

AILRON

REFERENCE INFORMATION

000000  
000000  
000000  
000000  
000000  
000000  
000000  
000000

.000  
4.000  
8.000  
12.000  
16.000  
20.000

MACH  
ELEVON

1.100  
.000

BETA  
BDFLAP

.000  
-7.170

QE7815  
RE7825  
RE7835

.000  
5.000  
10.000

RE7820  
RE7830

2.500  
7.500

SREF 2690.0000 50.FT.  
LREF 474.8000 IN.  
BREF 936.6900 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

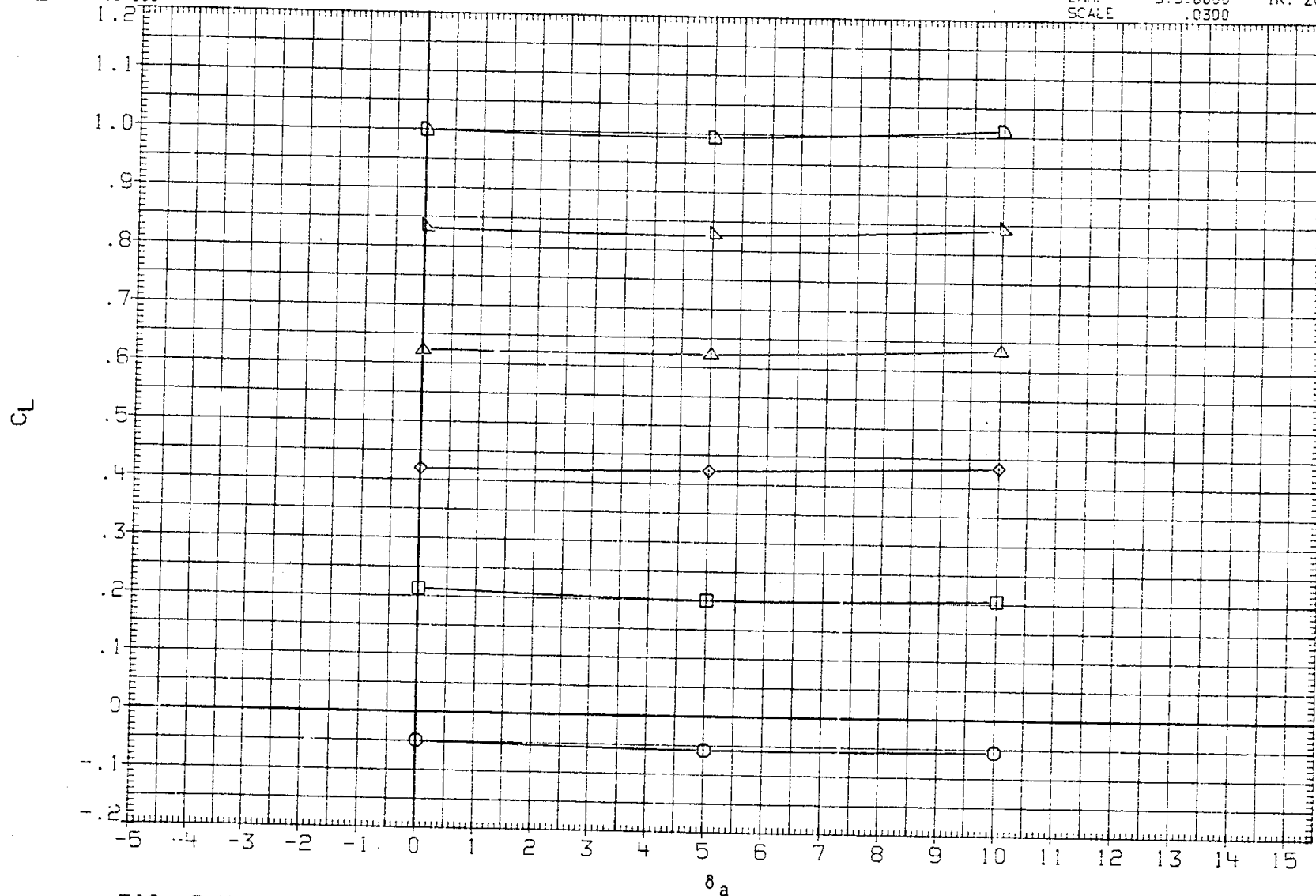


FIG. 6 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH AILERON



SYMBOL

2005

ARC 11-97-87-094 OA161 ORBITER

PARAMETRIC VALUES

## DATASET

AILRON

DATASET

AIRON

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

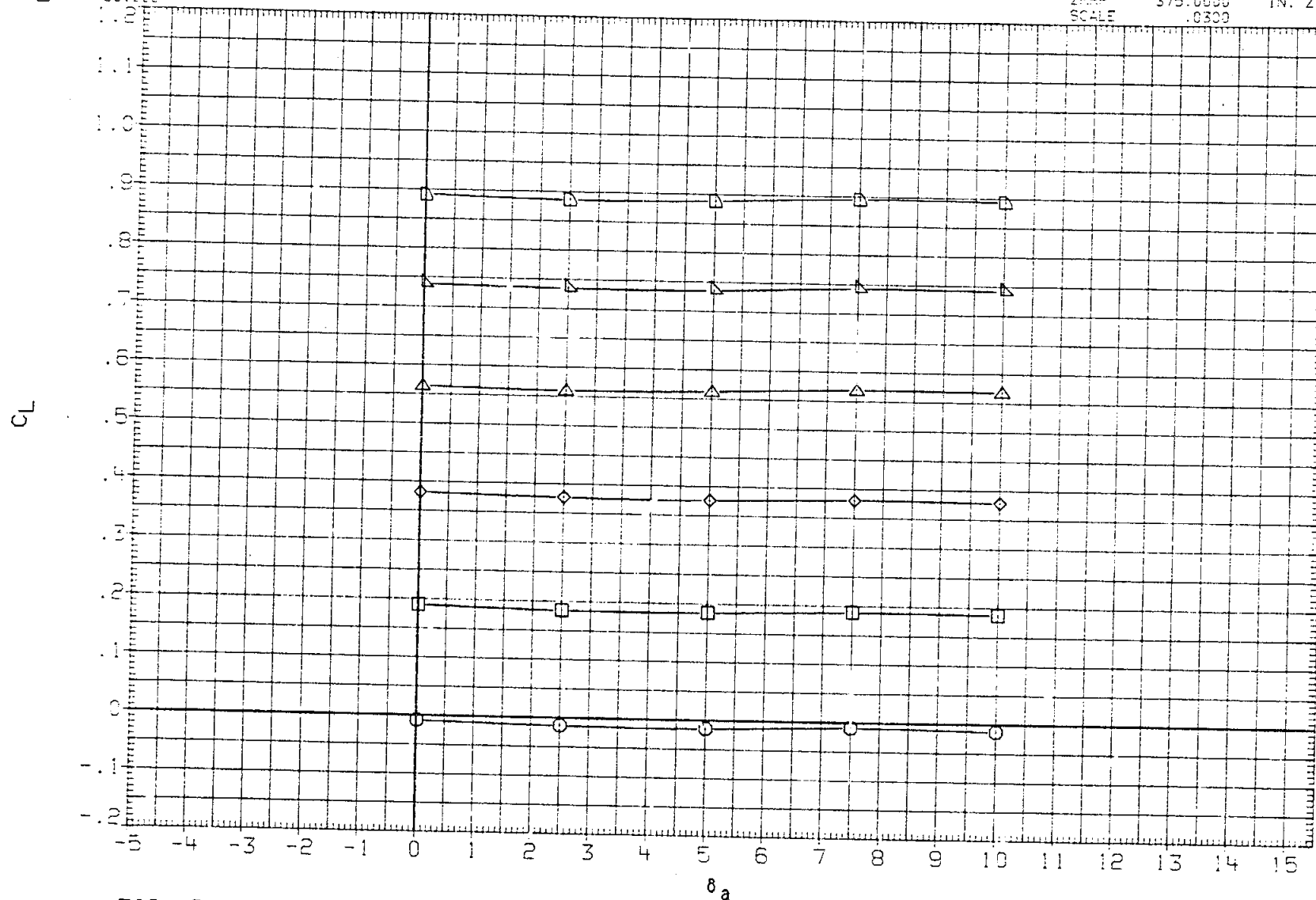


FIG. 6 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH AILERON



(QE7815) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	ALPHA	MACH	ELEVON	PARAMETRIC VALUES	BETA	BDFLAP	DATASET	AILRON	DATASET	AILRON	REFERENCE INFORMATION
	.000			.900	.000		QE7815	.000	RE7820	2.500	SREF 2690.0000 SQ.FT.
	4.000			.000	-7.170		RE7825	5.000	RE7830	7.500	LREF 474.8000 IN.
	8.000										BREF 936.6600 IN.
	12.000										XMRP 1076.6800 IN. XO
	16.000										YMRP .0000 IN. YO
	20.000										ZMRP 375.0000 IN. ZO
											SCALE .0300

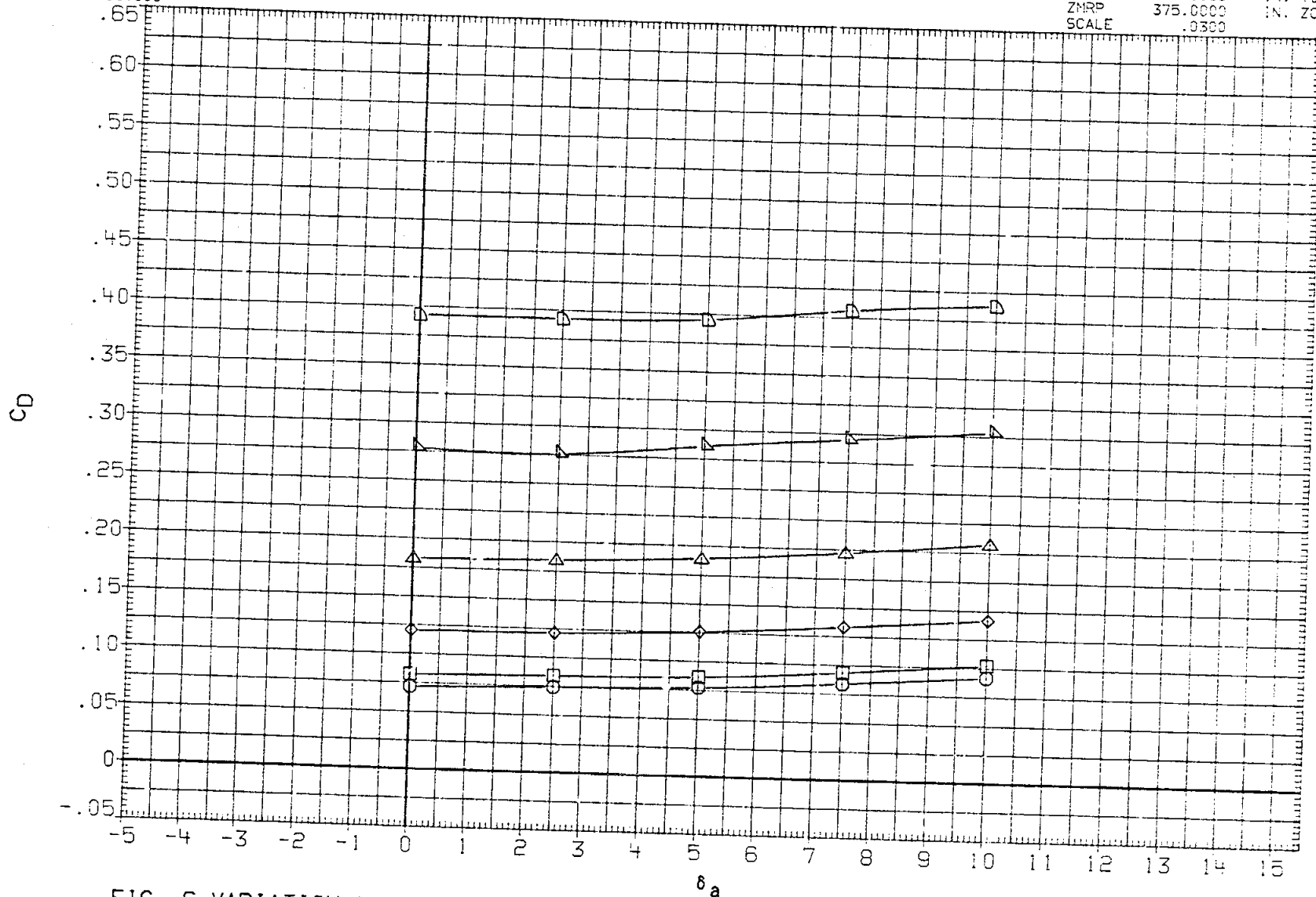


FIG. 6 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH AILERON

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

AILRON

DATASET

AILRON

REFERENCE INFORMATION

010440

.000  
4.000  
8.000  
12.000  
16.000  
20.000MACH  
ELEVON.900  
1.000BETA  
BDFLAP.000  
-7.170QE7815  
RE7825  
RE7835.000  
5.000  
10.000RE7820  
RE7830

SPRF	2690.0000	SC.F77
CRPF	-74.0000	IN.
BRPF	938.0000	IN.
XMRF	1016.0000	IN. X1
YMRF	1000.0000	IN. Y2
ZMRF	375.0000	IN. Z3
SCALE	0.0000	

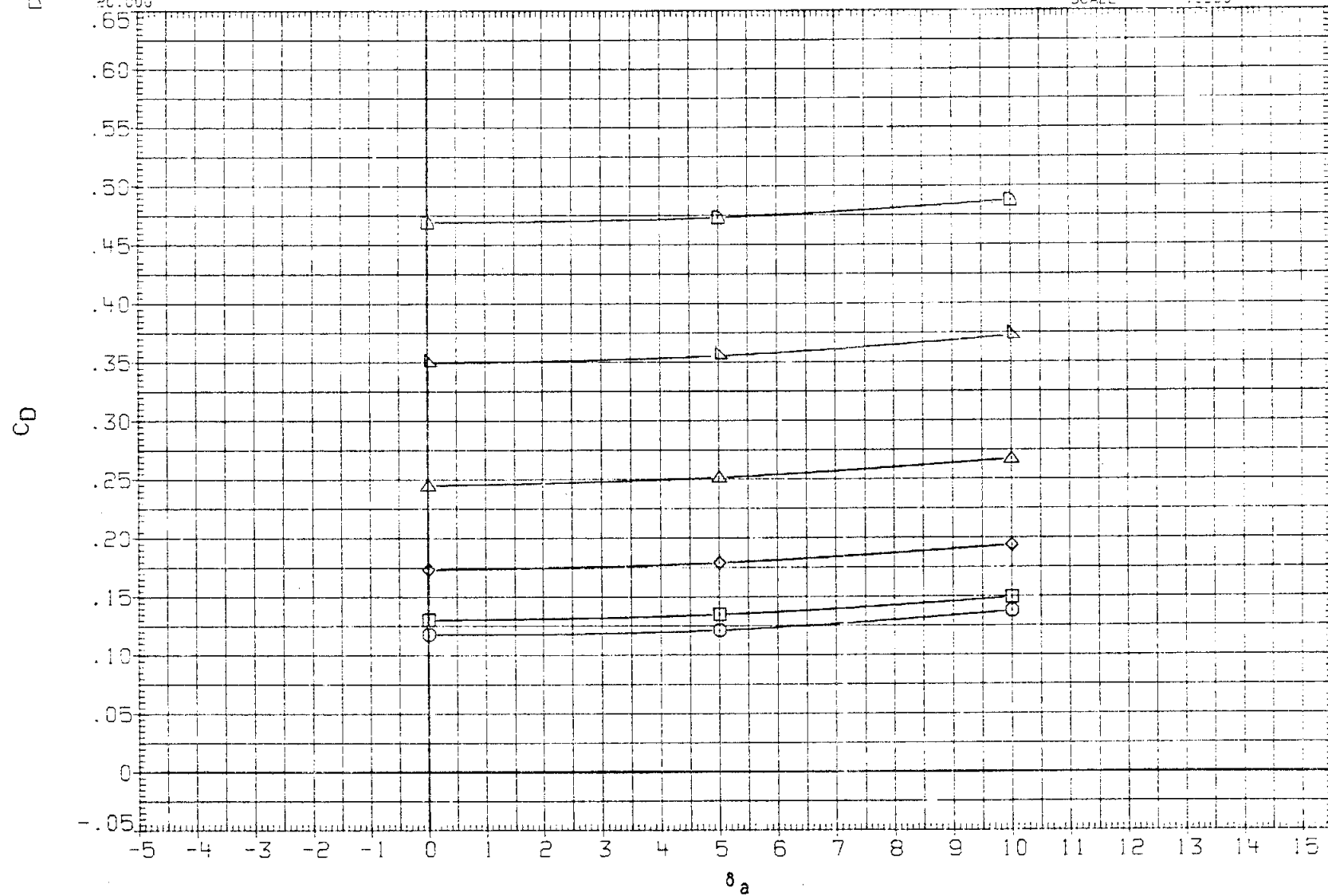


FIG. 6 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH AILERON



(QE7815) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	ALPHA	MACH	ELEVON	PARAMETRIC VALUES	BETA	BDFLAP	DATASET	AILRON	DATASET	AILRON	REFERENCE INFORMATION
○	.000			1.100	.000		QE7815	.000	RE7820	2.500	SREF 2690.0000 SQ. FT.
□	4.000			.000			RE7825	5.000	RE7830	7.500	LREF 474.8000 IN.
△	8.000										BREF 936.6800 IN.
◇	12.000										XMPP 1076.6800 IN. XO
▽	16.000										YMRP .0000 IN. YO
○	20.000										ZMRP 375.0000 IN. ZO
											SCALE .0300

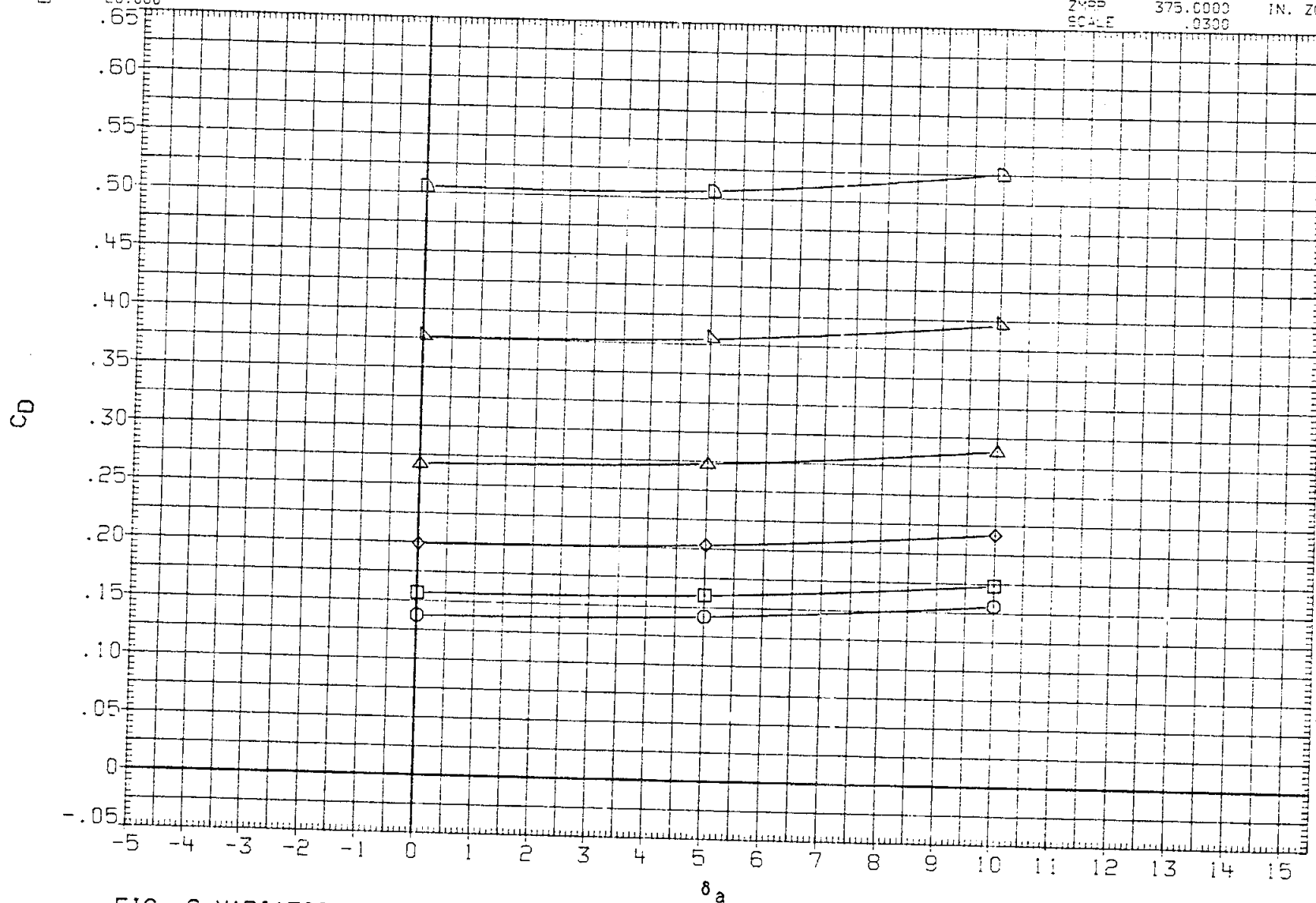


FIG. 6 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH AILERON

2.500  
7.500



(QE7815) ARC 11-97-87-094 0A161 ORBITER

SYMBOL	ALPHA	MACH	ELEVON	PARAMETRIC VALUES	BETA	BDCLAP	AILRON	DATASET	AILRON	DATASET	AILRON	REFERENCE INFORMATION
0	.000			1.400				QE7815	.000	RE7820	2.500	SREF 2690.0000 SQ.FT.
1	4.000			.000				RE7825	5.000	RE7830	7.500	LREF 474.8000 IN.
2	8.000											BREF 936.6800 IN.
3	12.000											XMPP 1076.6800 IN. X0
4	16.000											YMPP .0000 IN. Y0
5	20.000											ZMPP 375.0000 IN. Z0
												SCALE .0300

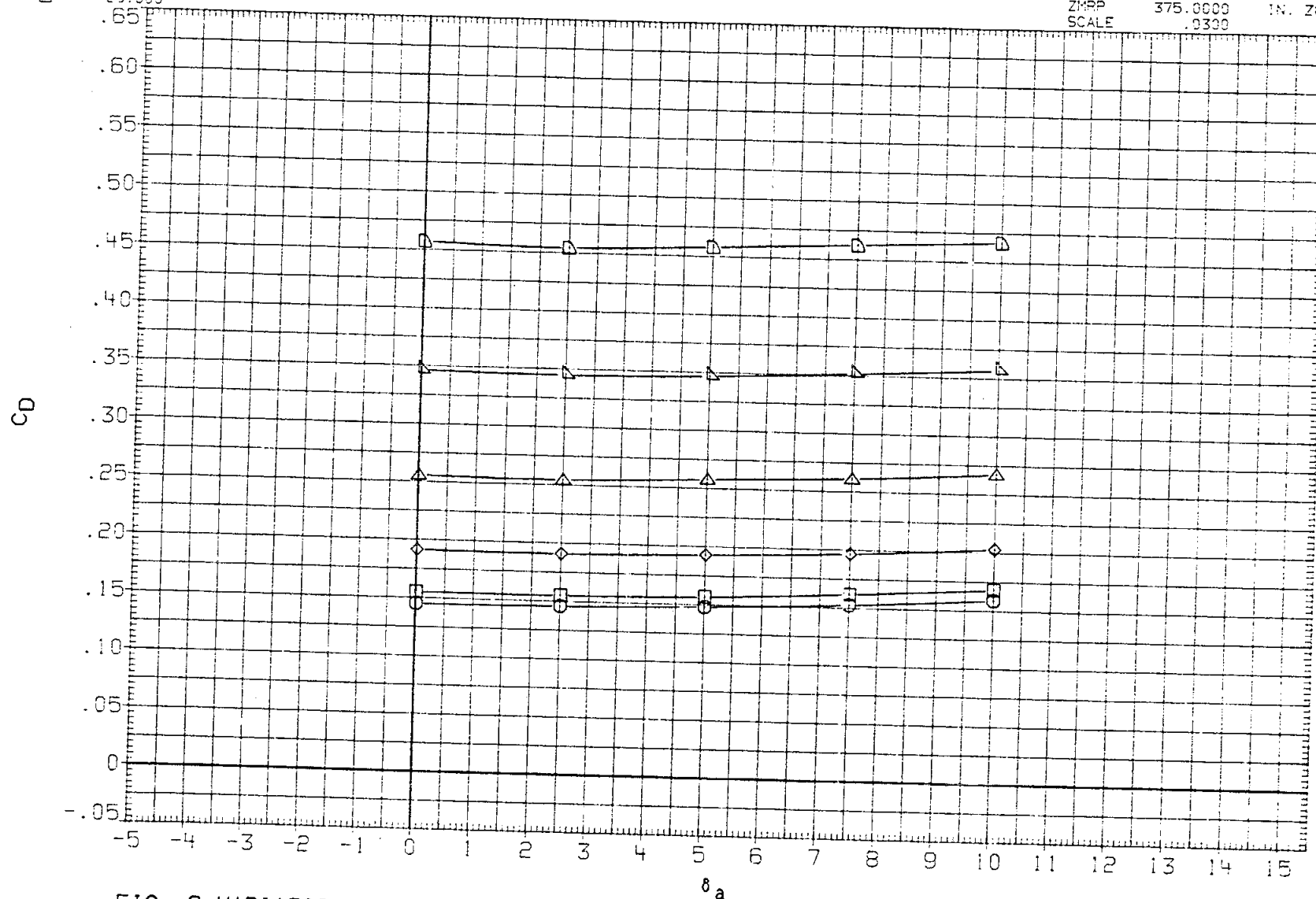


FIG. 6 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH AILERON

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

AILRON

DATASET

AILRON

REFERENCE INFORMATION

DIPLO

1.0000  
4.0000  
9.0000  
10.0000  
10.0000  
20.0000

MACH  
ELEVON

.600  
.000

BETA  
BDFLAP

.000  
-7.175

GE7815  
RE7825  
RE7835

.000  
5.000  
10.000

RE7820  
RE7830

2.500  
7.500

SPET 2620.0000 SQ. FT.  
CPST 474.6000 IN.  
SPST 936.8800 IN.  
XWOP 1076.6800 IN. XO  
YWOP .0000 IN. YO  
ZWOP 375.0000 IN. ZO  
SCALE .0300

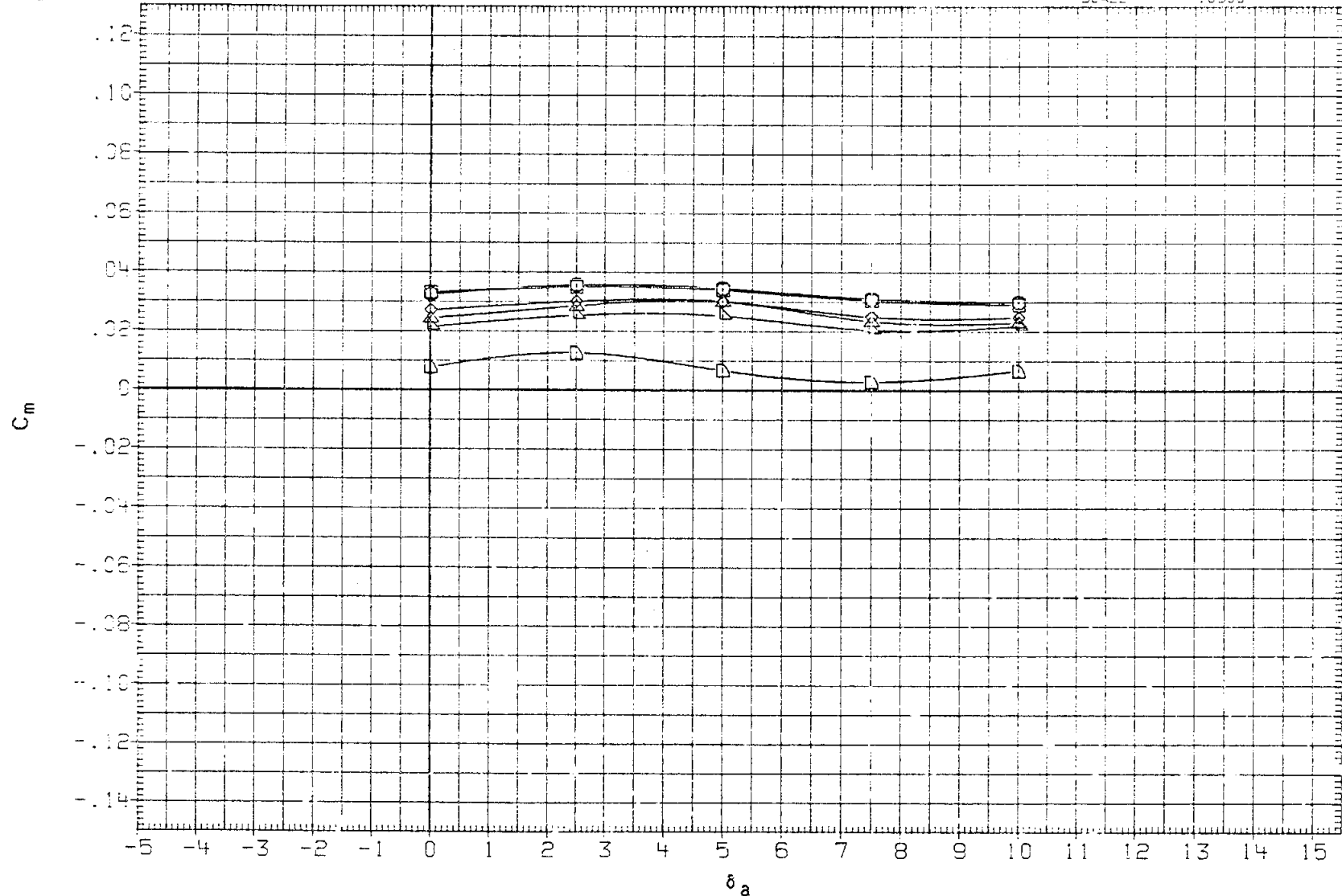


FIG. 6 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH AILERON

(QE7815) ARC 11-97-87-094 0A161 ORBITER

SYMBOL	ALPHA	MACH	ELEVON	PARAMETRIC VALUES	BETA	BDFLAP	DATASET	AILRON	DATASET	AILRON	REFERENCE INFORMATION
Q	.000				.000		QE7815	.000	RE7820	2.500	SREF 2630.0000 50.FT.
A	4.000					-7.170	RE7825	5.000	RE7830	7.500	LRIF 474.8000 IN.
Δ	8.000										BRFF 936.6800 IN.
△	12.000										XYDP 1076.6800 IN. XO
▽	16.000										YWRP .0000 IN. YO
D	20.000										ZWDP 375.0000 IN. ZO
											SCALE .0300

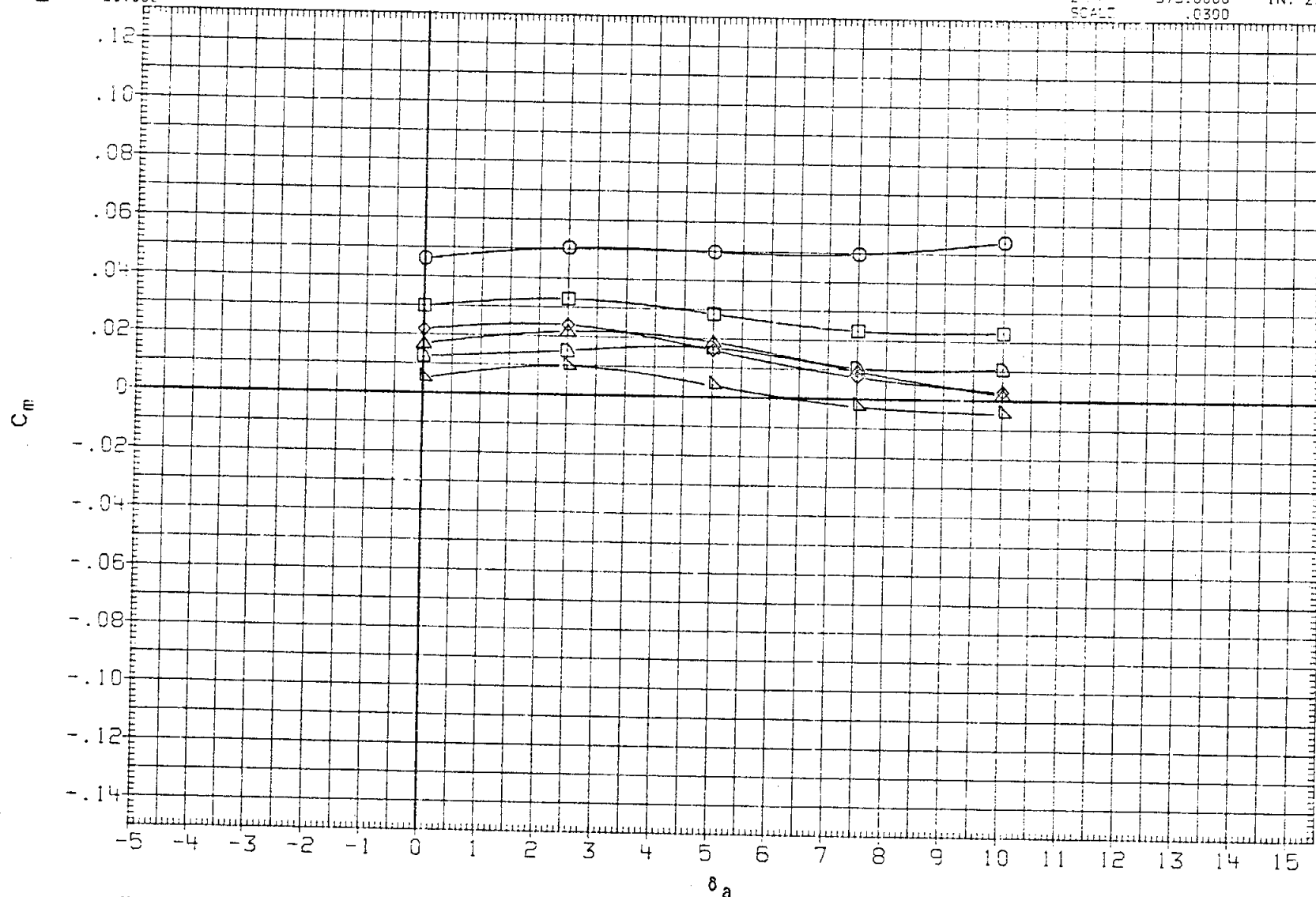


FIG. 6 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH AILERON

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

AILRON

DATASET

AILRON

REFERENCE INFORMATION

D20010

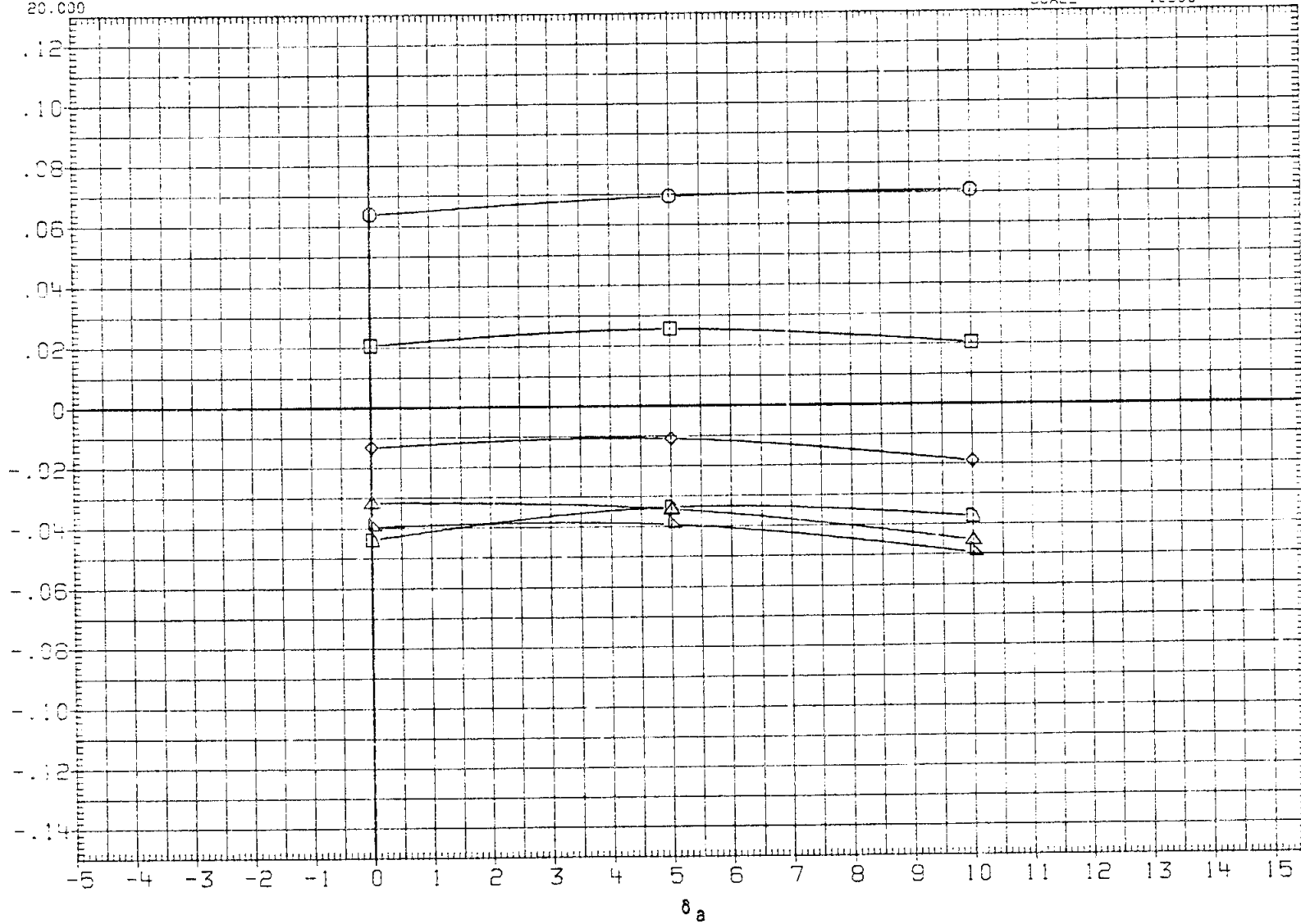
.000  
1.000  
5.000  
10.000  
15.000  
20.000MACH  
ELEVON.920  
.000BETA  
BDFLAP.000  
-7.170QE7815  
RE7825  
RE7835.000  
5.000  
10.000RE7830  
RE78302.500  
7.500SREF 2690.0000  
LREF 474.0100  
BREF 935.8800  
XMRP 1076.8800  
YMRP .0000  
ZMRP 375.0000  
SCALE .030055.171  
IN.  
IN.  
IN. X0  
IN. Y0  
IN. Z0 $C_m$ 

FIG. 6 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH AILERON

(QE7815) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	DATASET	AILRON	DATASET	AILRON	REFERENCE INFORMATION
○	.000		BETA	QE7815	.000	RE7820	2.500	SREF 2690.0000 SQ.FT.
□	4.000	ELEVON	BDFLAP	RE7825	5.000	RE7830	7.500	LREF 474.8000 IN.
◇	8.000			RE7835	10.000			BREF 936.6800 IN.
△	12.000							XMRP 1076.6800 IN. X0
▽	16.000							YMRP .0000 IN. Y0
◻	20.000							ZMRP 375.0000 IN. Z0
								SCALE .0300

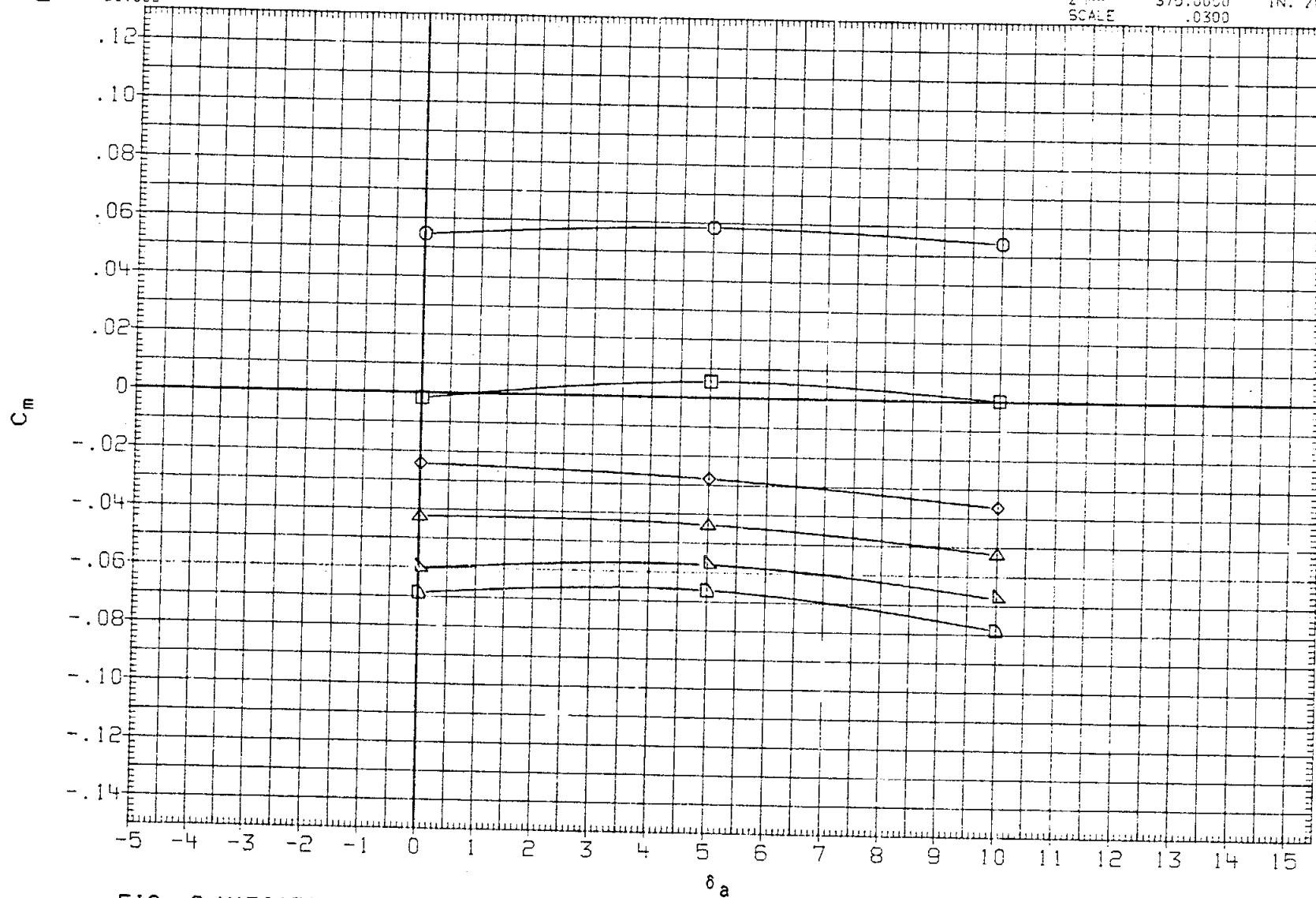


FIG. 6 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH AILERON

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

AILRON

DATASET

AILRON

REFERENCE INFORMATION

0  
 4  
 8  
 12  
 16  
 20

0.000  
 4.000  
 8.000  
 12.000  
 16.000  
 20.000

MACH  
 ELEVON

1.200  
 1.000

BETA  
 BDFLAP

.000  
 -7.170

0E7815  
 RE7825  
 RE7835

.000  
 5.000  
 10.000

RE7820  
 RE7830

2.500  
 7.500

SREF 2590.0000 50.FT.  
 LREF 474.0000 IN.  
 BREF 938.0000 IN.  
 XREF 1000.0000 IN.  
 YREF 1000.0000 IN.  
 ZREF 576.0000 IN.  
 SCALE 10500

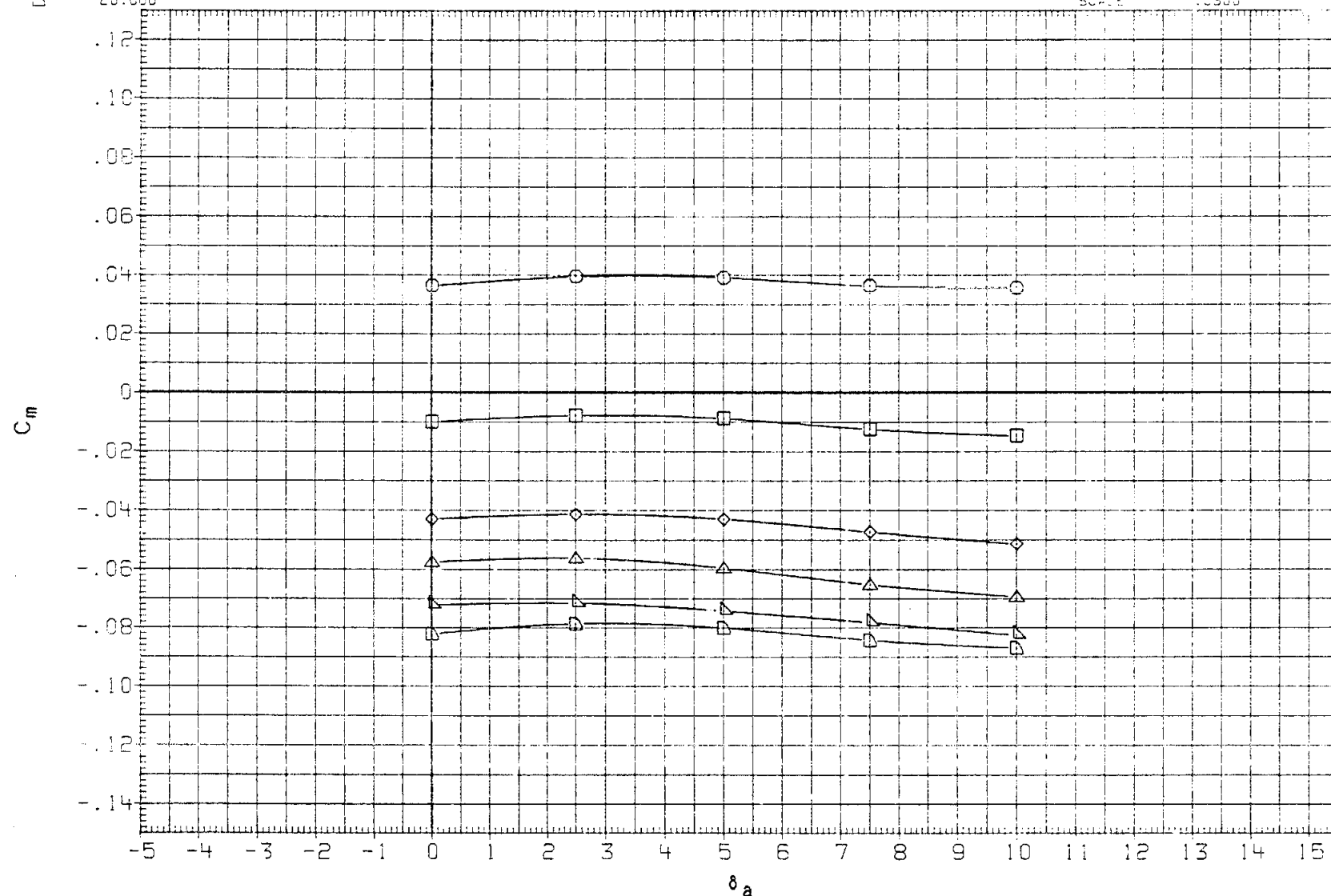


FIG. 6 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH AILERON



(QE7815) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	ALPHA	MACH	ELEVON	PARAMETRIC VALUES	BETA	BDFLAP	DATASET	AILRON	DATASET	AILRON	REFERENCE INFORMATION
○	.000			1.400	.000		QE7815	.000	RE7820	2.500	SREF 2690.0000 SQ. FT.
□	4.000			.000	-7.170		RE7825	5.000	RE7830	7.500	LREF 474.8000 IN.
◇	8.000										BREF 936.6800 IN.
△	12.000										XMPP 1076.6800 IN. YO
▽	16.000										YMPP .0000 IN. YO
◻	20.000										ZMPP 375.0000 IN. ZO
											SCALE .0300

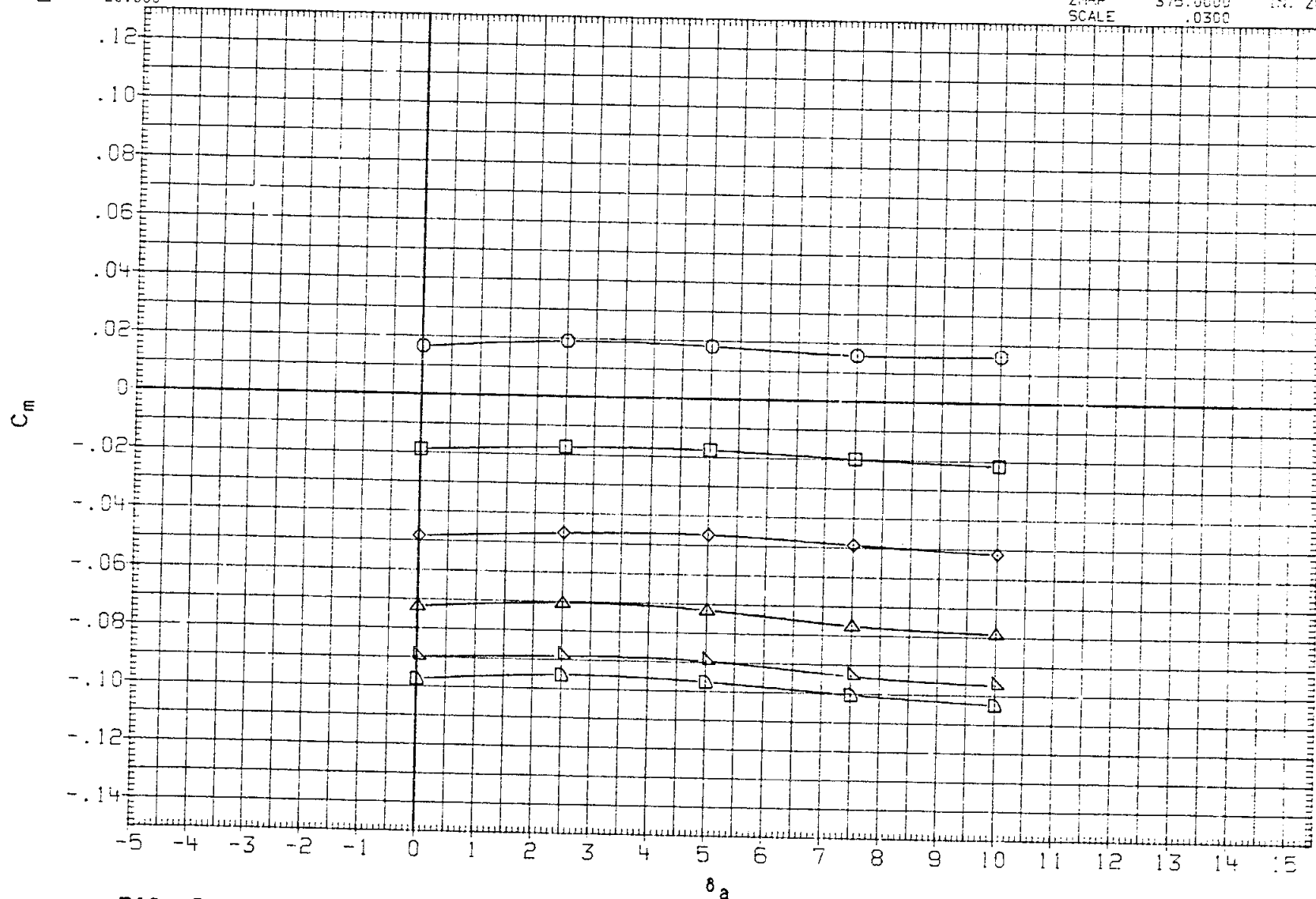


FIG. 6 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH AILERON

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

AILRON

DATASET

AILRON

REFERENCE INFORMATION

.000

MACH

.000

BETA

.000

QE7815

.000

AL7820

2.500

SAIF

2690.0000

SC.FT.

4.000

ELEVON

.000

BOFLAP

-7.170

RE7825

5.000

RE7830

7.500

LREF

474.0000

IN.

8.000

BRDF

976.0000

IN.

16.000

XMRP

1070.0000

IN. Y0

24.000

YMRP

1070.0000

IN. Y0

28.000

ZMRP

375.0000

IN. Z0

SCALE

1.0000

CA

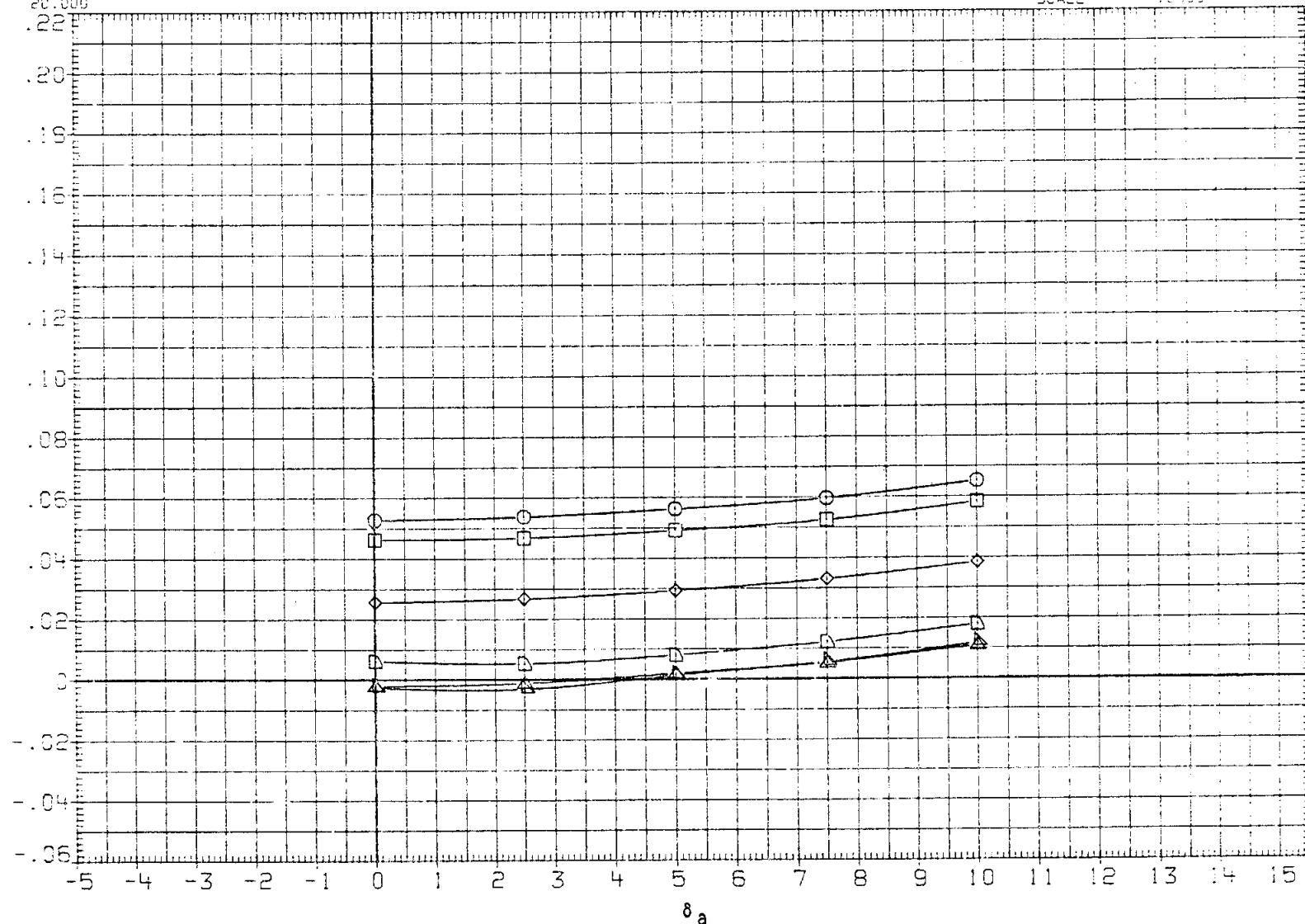


FIG. 6 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH AILERON

(QE7815) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	ALPHA	MACH	ELEVON	PARAMETRIC VALUES	BETA	BDFLAP	DATASET	AILRON	DATASET	AILRON	REFERENCE INFORMATION
○	4.000			.900		.000	QE7815	.000	RE7820	2.500	SREF 2690.0000 SQ.FT.
□	8.000			.000		-7.170	RE7825	5.000	RE7830	7.500	LREF 474.8000 IN.
◇	12.000						RE7835	10.000			BREF 936.6800 IN.
△	16.000										XMRP 1076.6800 IN. XO
▽	20.000										YMRP .0000 IN. YO
○											ZMRP 375.0000 IN. ZO
											SCALE .0300

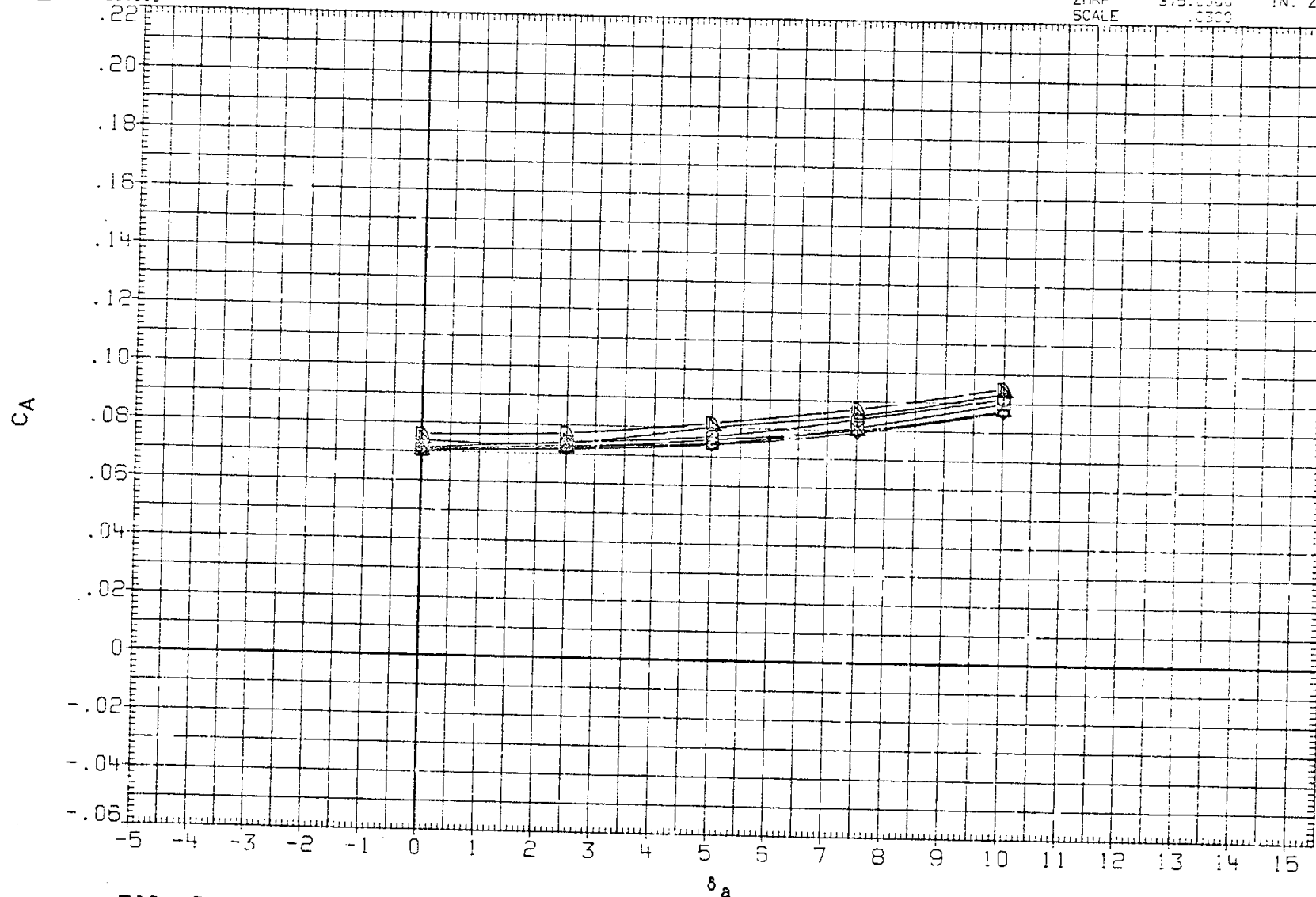


FIG. 6 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH AILERON

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

AILERON

DATASET

AILERON

REFERENCE INFORMATION

SRIT	2690.0000	SO. IT.
LRIT	175.8000	IN.
BRIT	936.6800	IN.
YMRP	1076.5500	IN. YO
YMRP	1076.5500	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	1.0300	

CA

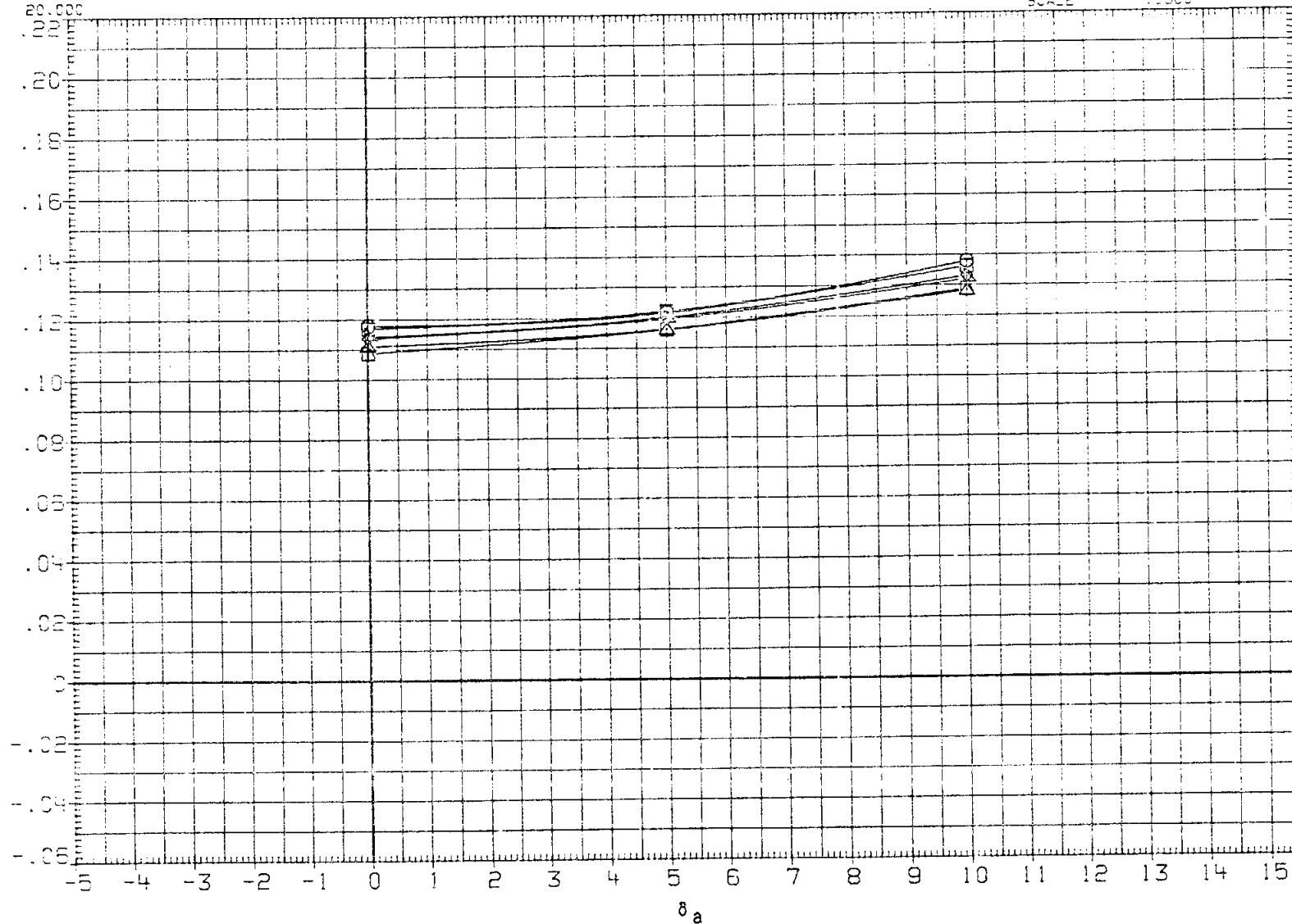


FIG. 6 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH AILERON

(QE7815) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	ALPHA	MACH	ELEVON	PARAMETRIC VALUES	BETA	BDFLAP	DATASET	AILRON	DATASET	AILRON	REFERENCE INFORMATION
○	.000			1.100	.000		QE7815	.000	RE7820	2.500	SPEF 2690.0000 SQ.FT.
□	4.000			.000			RE7825	5.000	RE7830	7.500	LPEF 474.8000 IN.
◇	8.000										BREF 936.6800 IN.
△	12.000										XMPP 1076.6800 IN. XO
▽	16.000										YMPP .0000 IN. YO
◻	20.000										ZMPP 375.0000 IN. ZO
											SCALE .0300

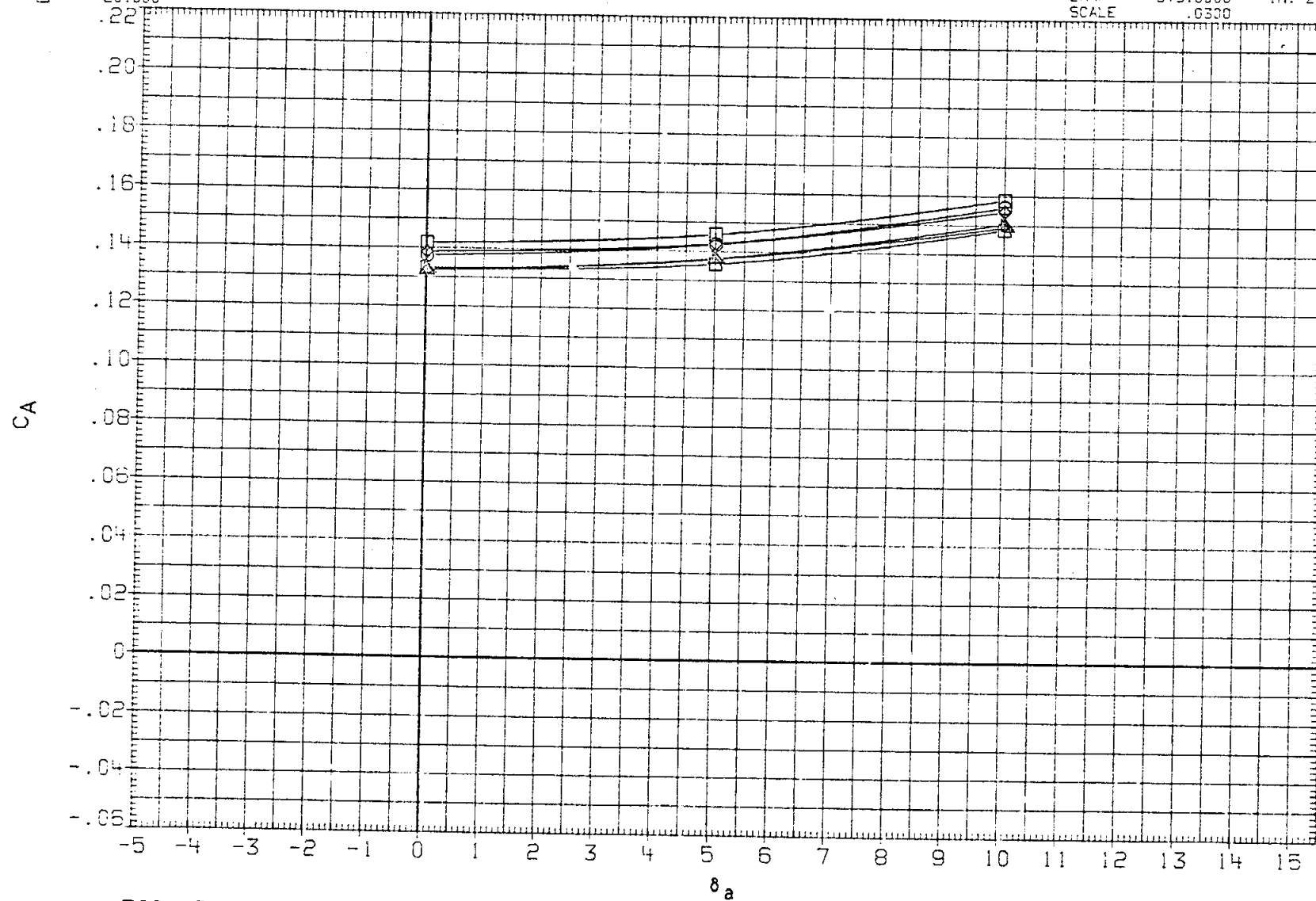


FIG. 6 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH AILERON



(QE7815) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	ALPHA	MACH	PARAMETRIC	VALUES	DATASET	AILRON	DATASET	AILRON	REFERENCE INFORMATION		
○	.000		BETA	.000	QE7815	.000	RE782C	2.500	SREF	2690.0000	SQ.FT.
◇	4.000	ELEVON	BDFLAP	-7.170	RE7825	5.000	RE783C	7.500	LREF	474.8000	IN.
△	8.000								BREF	936.6800	IN.
□	12.000								XMRF	1076.6800	IN. XO
○	16.000								YMRF	.0000	IN. YO
○	20.000								ZMRF	375.0000	IN. ZO
									SCALE	.0300	

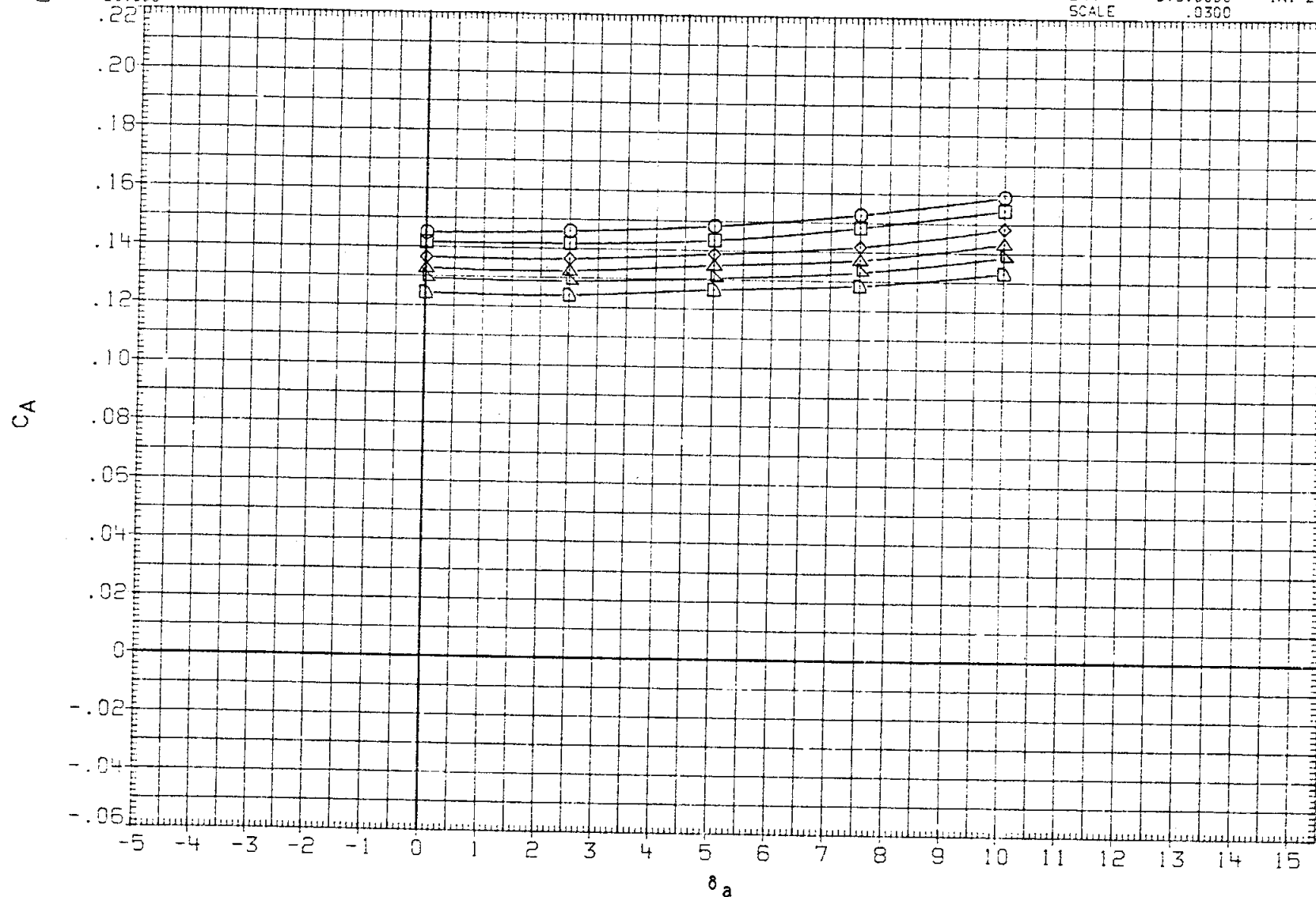


FIG. 6 VARIATION OF LONGITUDINAL CHARACTERISTICS WITH AILERON

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

SRPT	2830.0000	SC PT
STPT	174.8000	IN.
STPT	938.8800	IN.
XMRP	1078.6600	IN. XO
YMRP	1010.0000	IN. YO
ZMRP	505.0000	IN. ZO
SCALE	0.3300	

CY

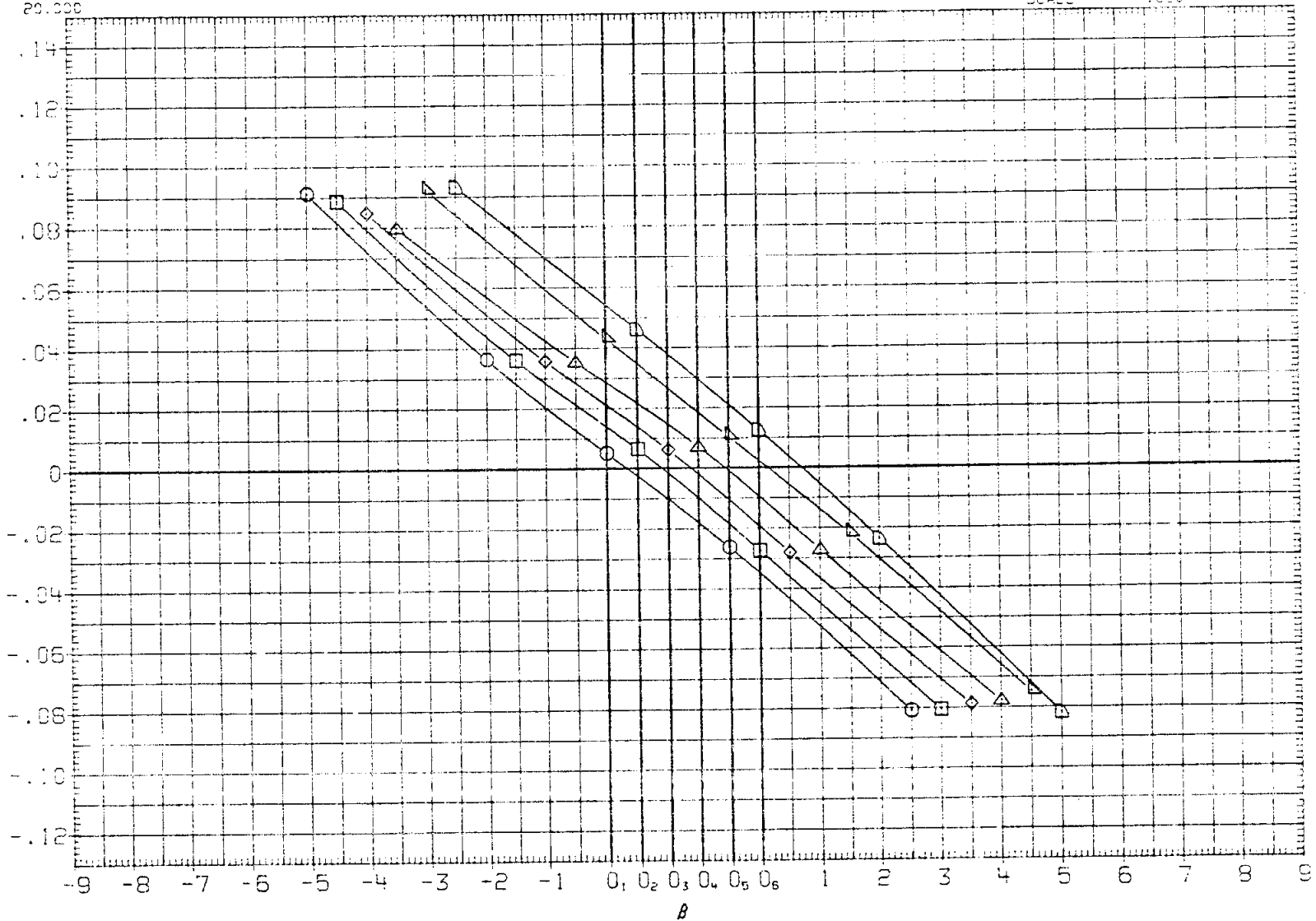


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA



(SE7913) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	ELEVON	BDFLAP	DATASET	BETA	DATASET	BETA	REFERENCE INFORMATION
0100441	.000	.700	.000	.000	.000	SE7913	-5.000	SE7914	-2.000	SREF 2690.0000 SQ.FT.
	4.000	.000	.000	.000	-7.170	SE7915	.000	SE7916	2.000	LREF 474.8000 IN.
	8.000									BREF 936.6800 IN.
	12.000									XMRP 1076.6800 IN. XO
	16.000									YMRP .0000 IN. YO
	20.000									ZMRP 375.0000 IN. ZO
										SCALE .0300

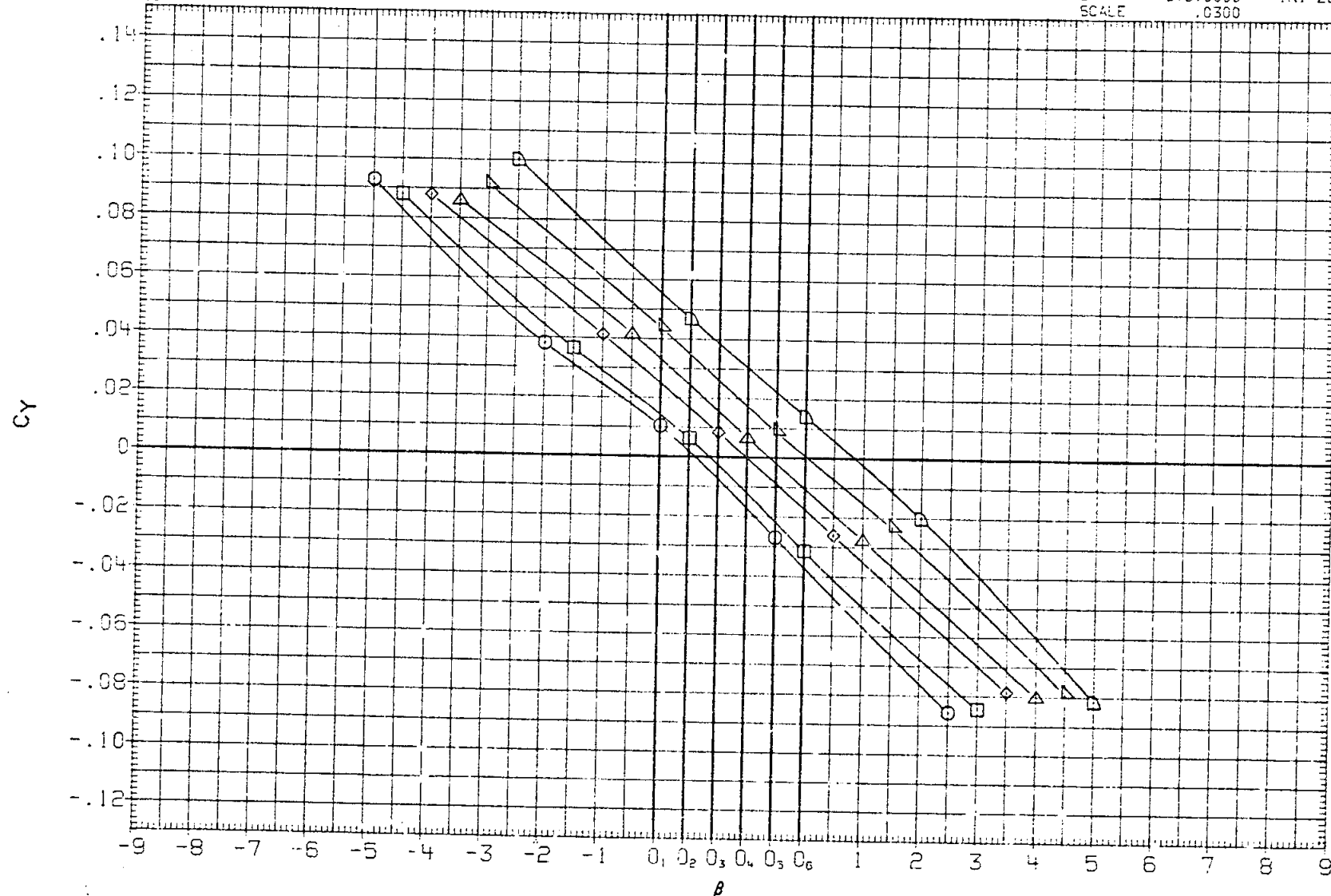


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

ALPHA

REFERENCE INFORMATION

SREF	2890.0000	SC.F.L.
CRCP	474.8700	IN.
BRCP	936.0400	IN.
YMRP	1078.6500	IN. XO
YMRP	10000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	10000	

CY

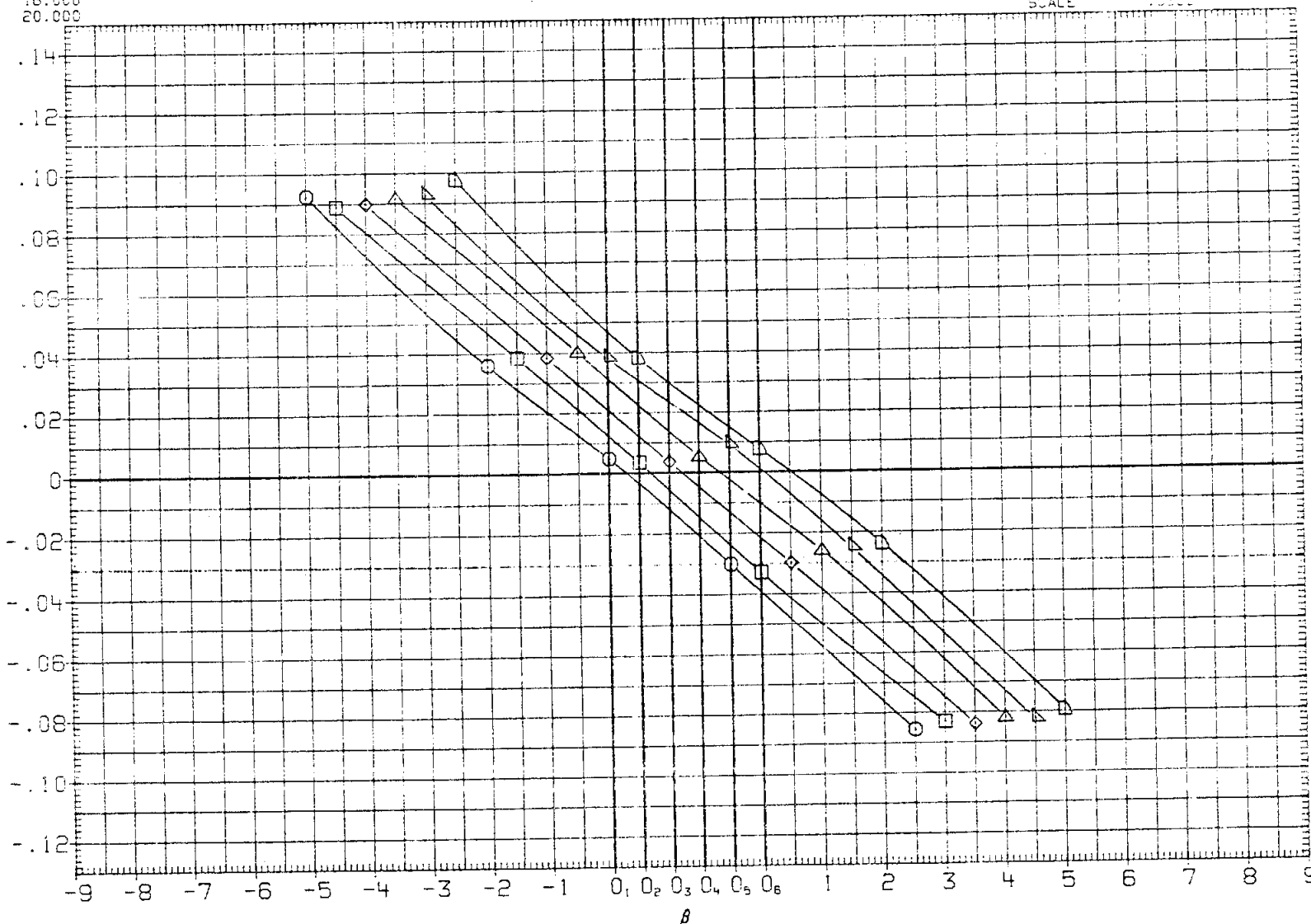


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

(SE7913) ARC 11-97-87-094 0A161 ORBITER

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	ELEVON	BDFLAP	DATASET	BETA	DATASET	BETA
○	.000			.000		SE7913	-5.000	SE79 4	-2.000
◇	4.000	A1LRON	.000		-7.170	SE7915	.000	SE79 6	2.000
□	8.000					SE7917	5.000		
△	12.000								
▽	16.000								
◻	20.000								

REFERENCE INFORMATION		
SREF	2590.0000	SQ. FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1075.6500	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

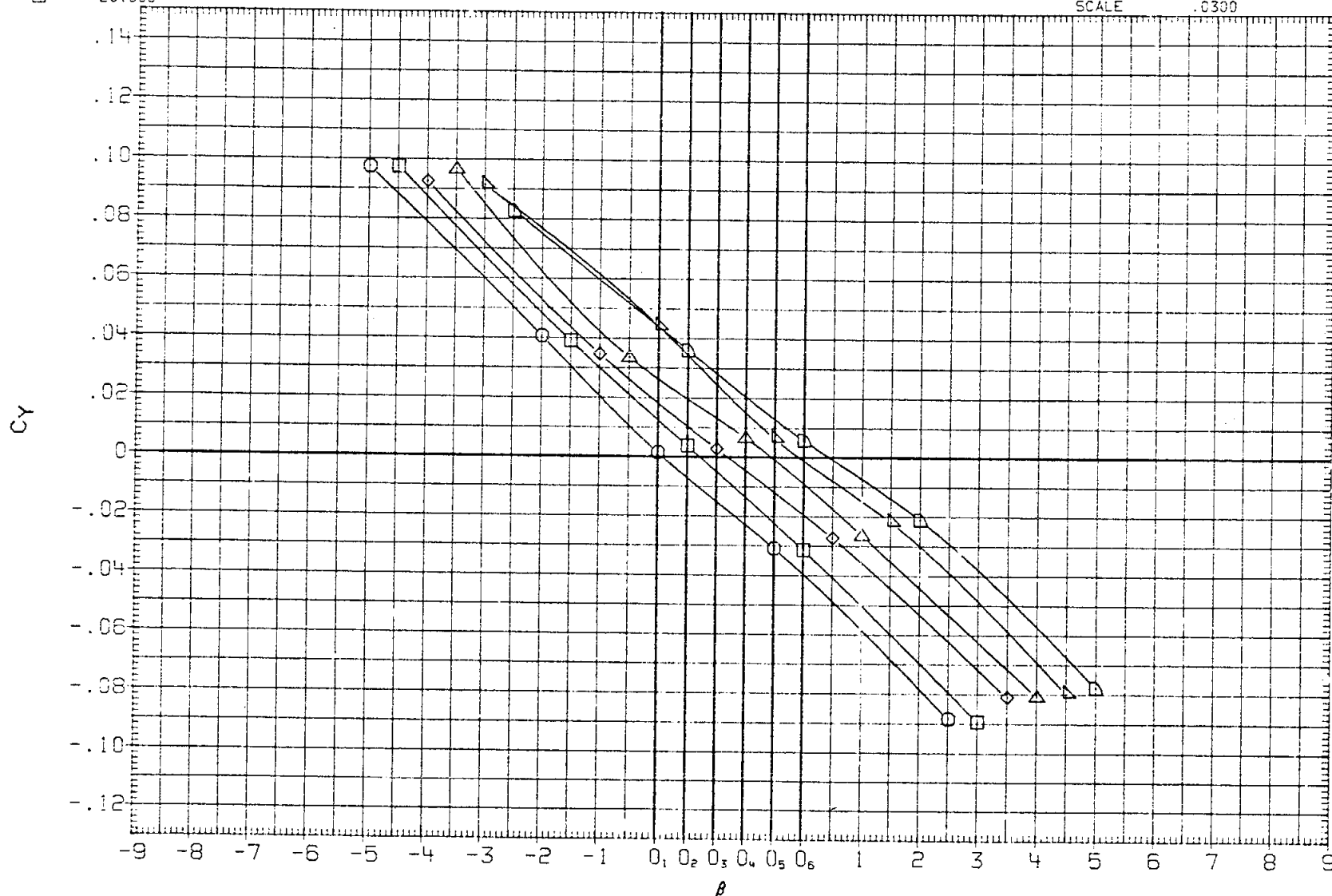


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

SREF	2690.0000	SC. 77.
UREF	474.8000	IN.
SREF	939.6000	IN.
YMRP	1078.6000	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0200	

CY

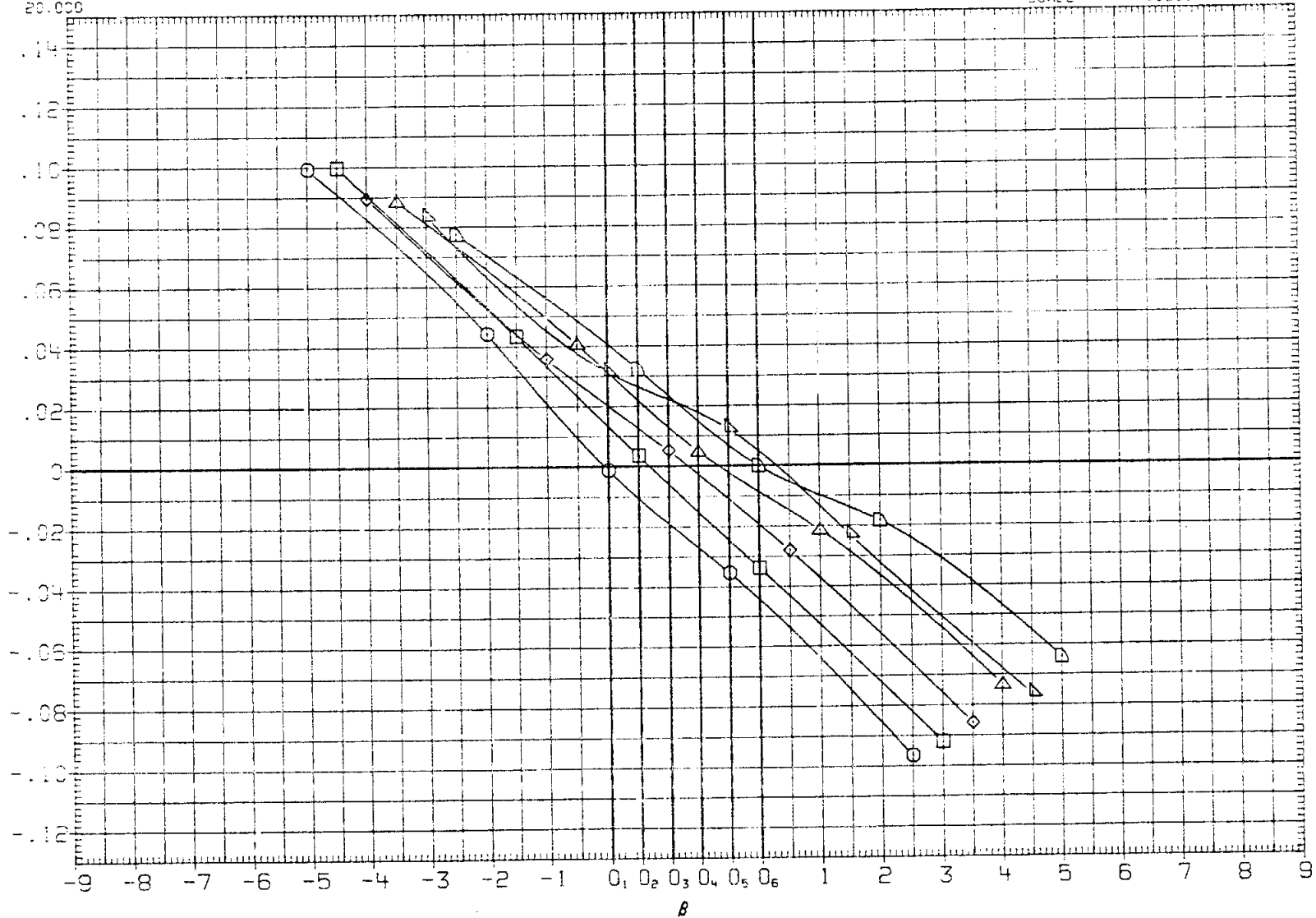


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

(SE7913) ARC 11-97-87-094 0A161 ORBITER

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	ELEVON	BOFLAP	DATASET	BETA	DATASET	BETA	REFERENCE INFORMATION
○	.000		.950	.000	.000	SE7913	-5.000	SE7914	-2.000	SREF 2690.0000 SQ.FT.
□	4.000		.000	.000	-7.170	SE7915	.000	SE7916	2.000	LREF 474.8000 IN.
◇	8.000					SE7917	5.000			SREF 936.6800 IN.
△	12.000									XMPP 1076.6800 IN. XO
	16.000									YMRP .0000 IN. YO
	20.000									ZMRP 375.0000 IN. ZO
										SCALE .0300

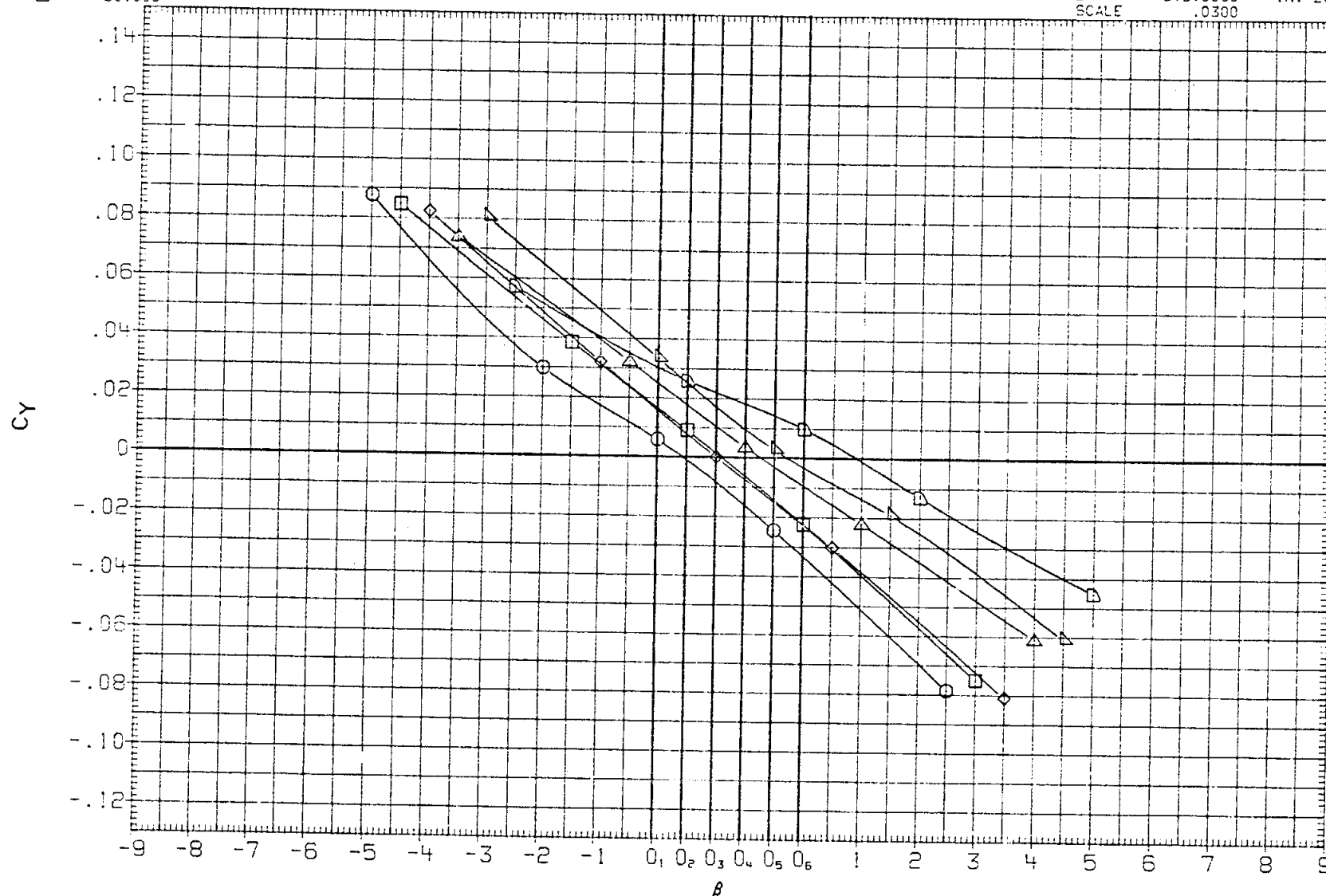


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

SPIN	2880.0000	SCALE
TIME	0.0000	IN.
BREF	938.0000	IN.
XMRP	1000.0000	IN. XO
YMRP	0.0000	IN. YO
ZMRP	0.0000	IN. ZO
SCALE	1.0000	

CY

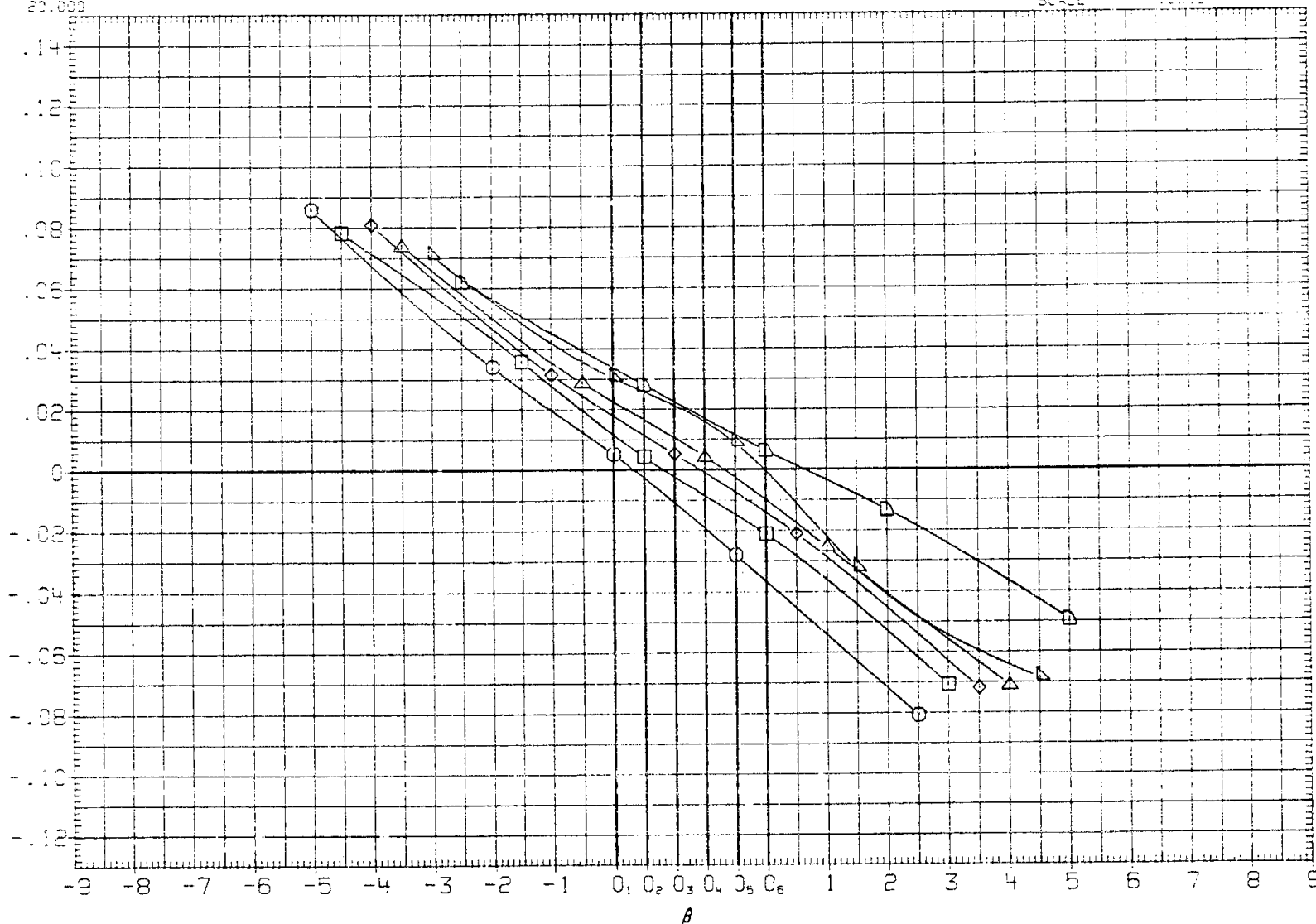


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

(SE7913) ARC 11-97-87-094 OA161 ORBITER

SYMBOL  
0104M

ALPHA  
.000  
4.000  
8.000  
12.000  
16.000  
20.000

MACH  
A1LRON

PARAMETRIC VALUES

1.050  
.000

ELEVON  
BDFLAP

.000  
-7.170

DATASET

SE7913  
SE7915  
SE7917

BETA

-5.000  
.000  
5.000

DATASET

SE7914  
SE7916

BETA

-2.000  
2.000

REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 935.6800 IN.  
XMRP 1076.8800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

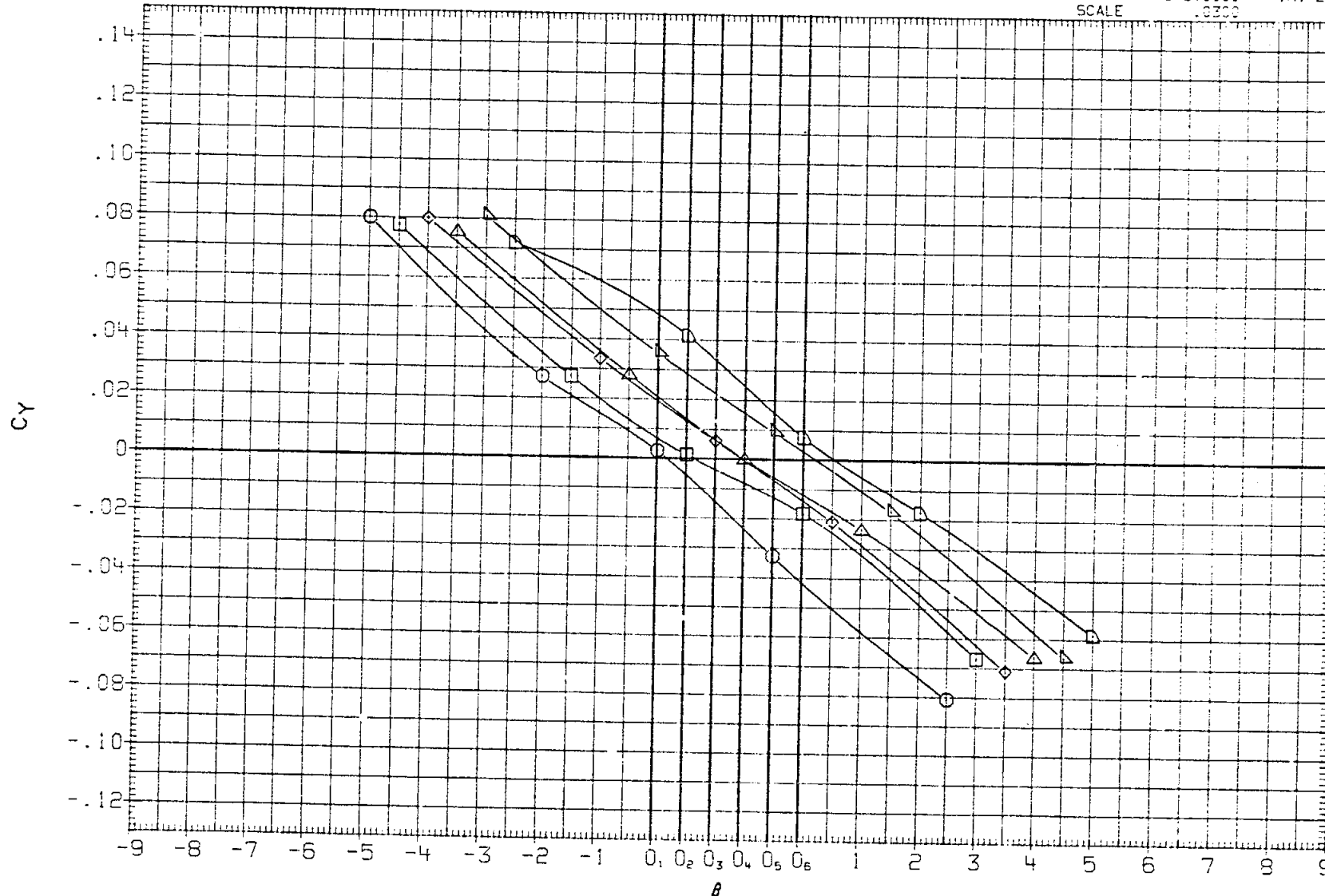


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA



PAGE 74



(SE7913) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	ALPHA	MACH	PARAMETRIC	VALUES	DATASET	BETA	DATASET	BETA	REFERENCE INFORMATION		
○	.000				SE7913	-5.000	SE7914	-2.000	SREF	2690.0000	SQ.FT.
□	4.000	AILRON	1.150	ELEVON	SE7915	.000	SE7916	2.000	LREF	474.8000	IN.
◇	8.000		.000	BDFLAP	SE7917	5.000			BREF	935.6800	IN.
△	12.000								XMRP	1076.6800	IN. XO
	16.000								YMRP	.0000	IN. YO
	20.000								ZMRP	375.0900	IN. ZO
									SCALE	.0300	

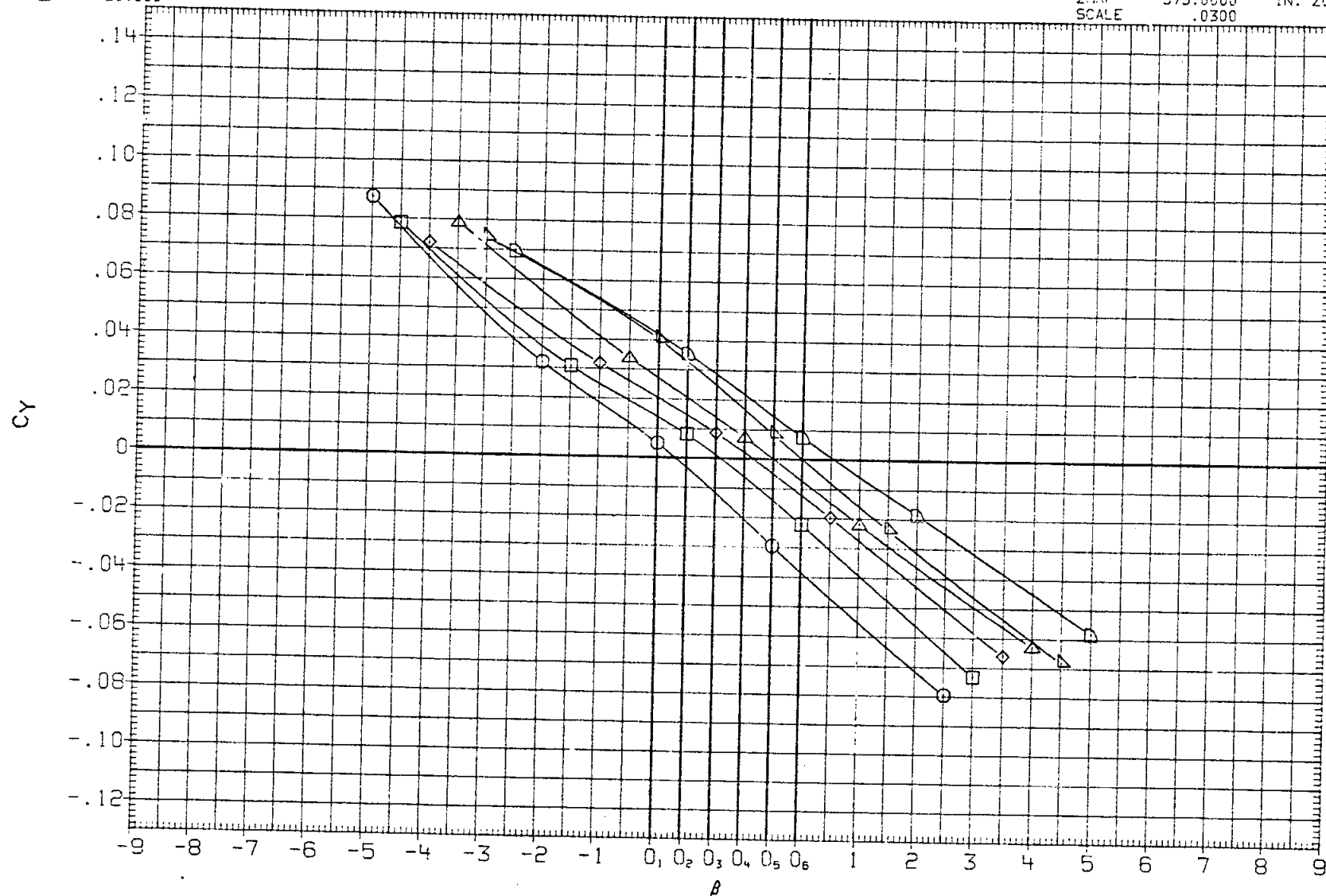


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATA SET

BETA

REFERENCE INFORMATION

0.000  
4.000  
8.000  
12.000  
16.000  
20.000

MACH  
ATLRON

1.000  
1.000  
ELEVON  
BDFLAP

1.000  
-7.170

DE7913  
SE7915  
SE7917

-6.000  
1.000  
5.000

SE7914  
SE7916

-2.000  
2.000

SREF 2690.0000 SL, FT.  
LEOP 474.0000 IN.  
BRFF 936.8800 IN.  
XMRP 1078.6800 IN, YO  
YMRP 1.0000 IN, YO  
ZMRP 375.0000 IN, ZO  
SCALE .0300

CY

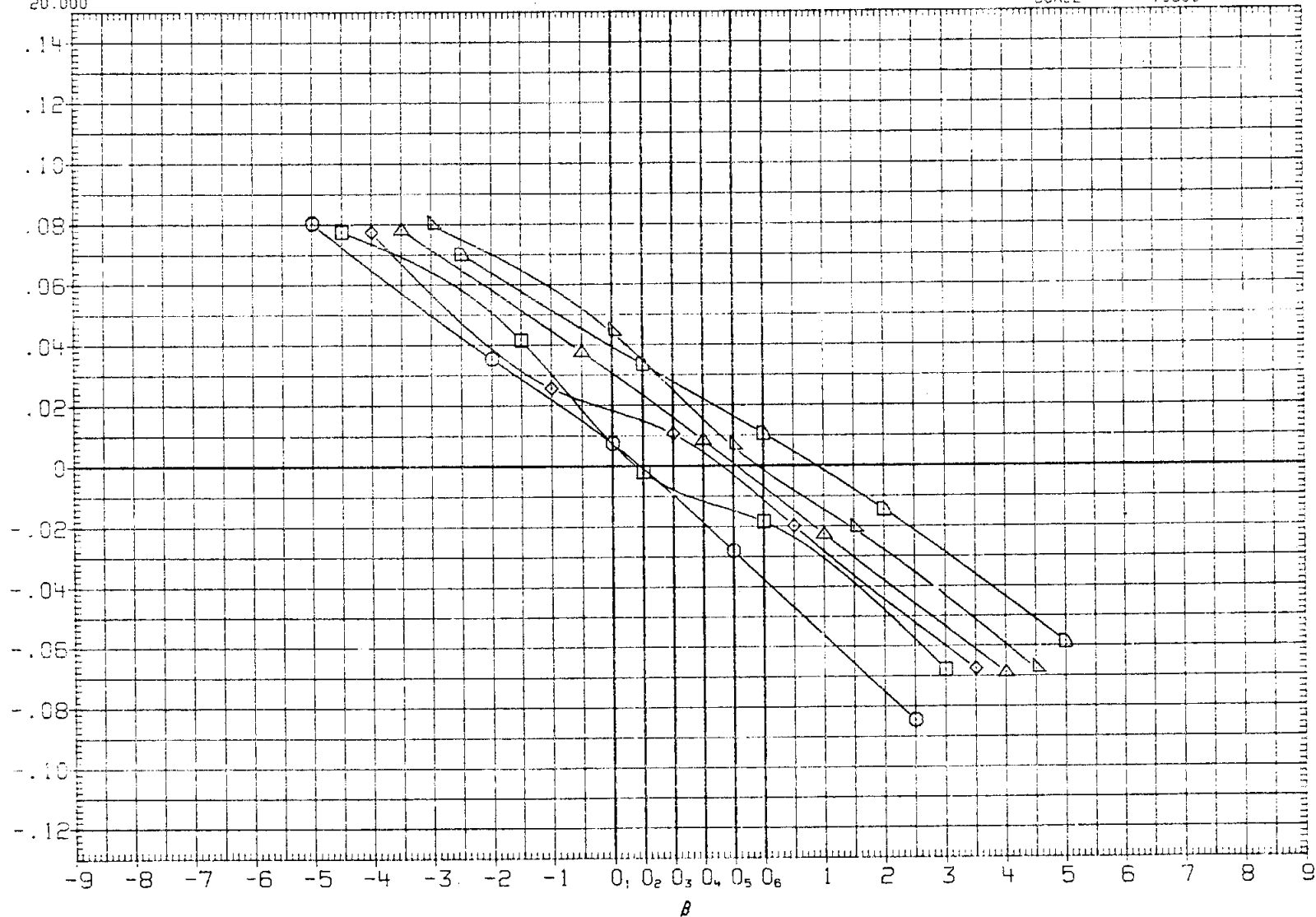


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

(SE7913) ARC 11-97-87-094 0A161 ORBITER

ORBIT ORBITER										REFERENCE INFORMATION	
SYMBOL	ALPHA	PARAMETRIC VALUES				DATASET	BETA	DATASET	BETA		
○	0.000	MACH	1.300	ELEVON	0.000	SE7913	-5.000	SE7914	-2.000	SREF	2690.0000 SQ.FT.
◇	4.000	AILRON	0.000	BOFLAP	-7.176	SE7915	0.000	SE7916	2.000	LREF	474.8000 IN.
△	8.000					SE7917	5.000			BREF	936.6800 IN.
▽	12.000									XMPP	1075.6900 IN. XO
□	16.000									YMRP	0.0000 IN. YO
◇	20.000									ZMRP	375.0000 IN. ZO
										SCALE	0.0330

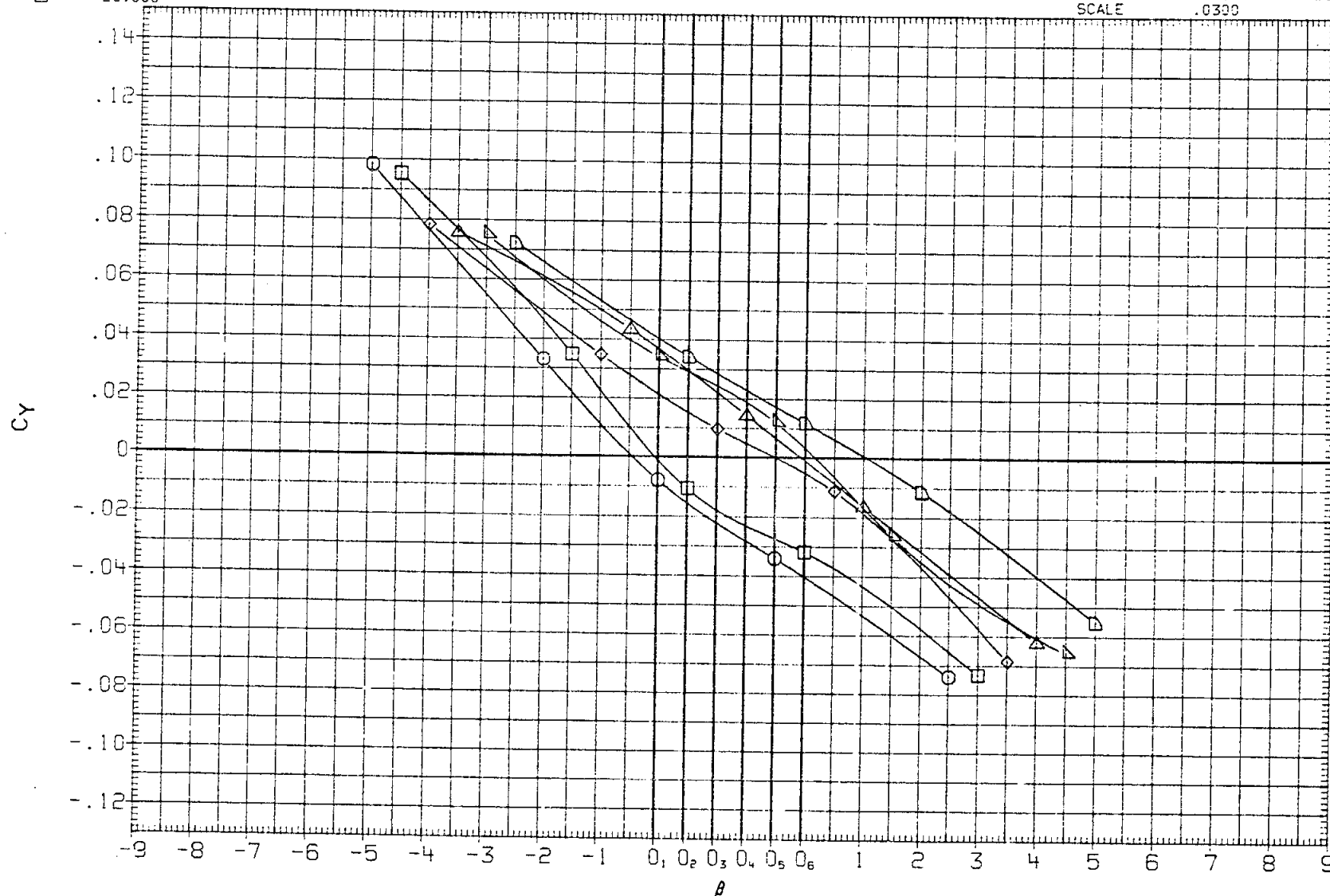


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

0.0000  
4.0000  
8.0000  
12.0000  
16.0000  
20.0000

WACH  
AIRLON

1.000  
.000

ELEVON  
BOFLAP

1.000  
-7.170

SE7913  
SE7915  
SE7917

-8.000  
.000  
5.000

SE7914  
SE7916

-8.000  
2.000

SRF 2680.0000 SQ.FT.  
LREF 474.8000 IN.  
SPRF 936.6600 IN.  
XMRP 1076.8800 IN. XG  
YMRP .0000 IN. YG  
ZMRP 375.0000 IN. ZG  
SCALE .0300

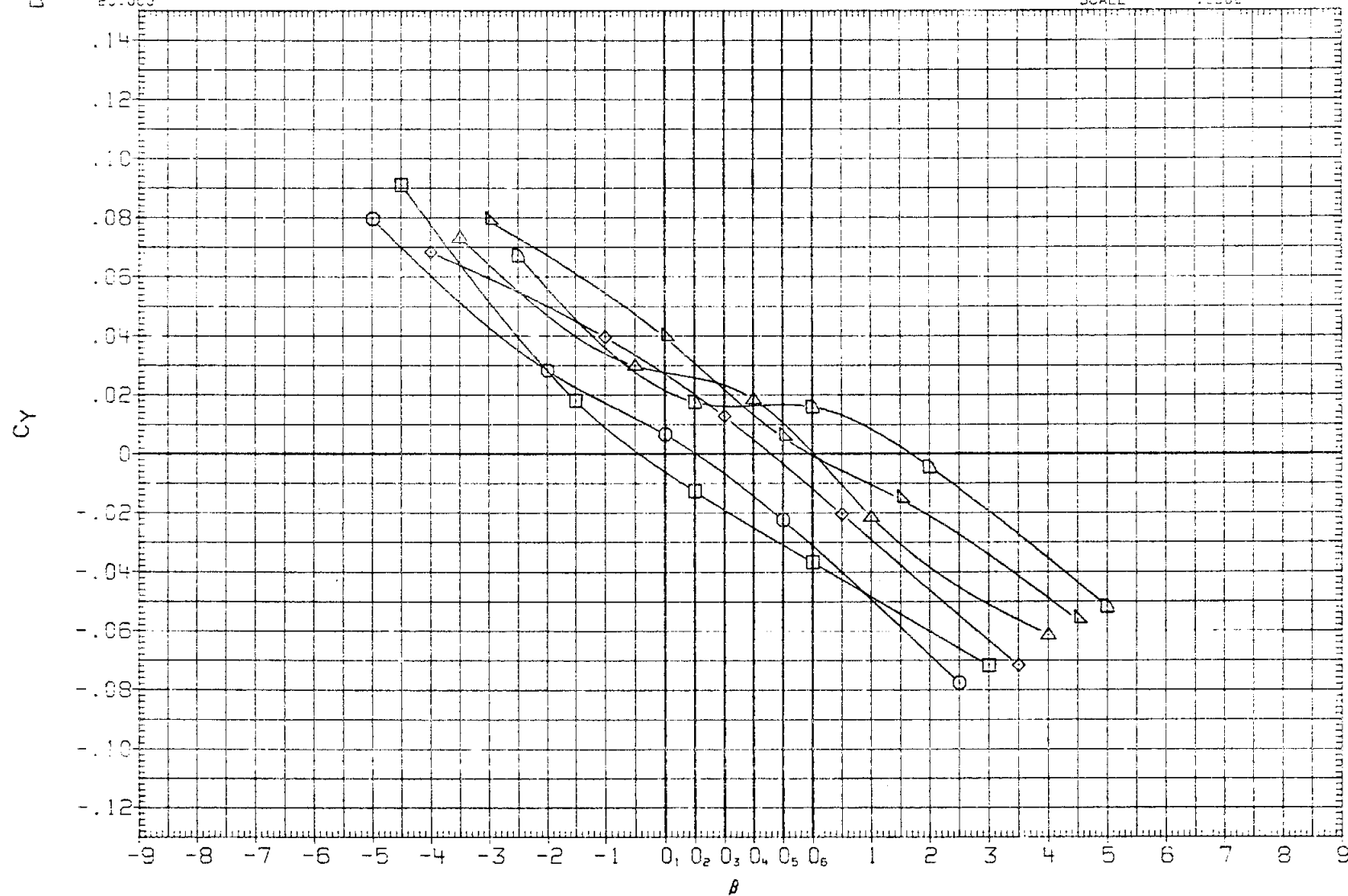


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

(SE7913) ARC 11-97-87-094 0A161 ORBITER

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	ELEVON	BOFLAP	DATASET	BETA	DATASET	BETA	REFERENCE INFORMATION
○	.000					SE7913	-5.000	SE7914	-2.000	SREF 2690.0000 SQ.FT.
□	4.000	AILRON	1.550	.000	-7.170	SE7915	.000	SE7916	2.000	LREF 474.8000 IN.
◇	8.000					SE7917	5.000			BREF 936.6800 IN.
△	12.000									XMPP 1076.6800 IN. XO
▽	16.000									YMRP .0000 IN. YO
◻	20.000									ZMRP 375.0000 IN. ZO
										SCALE .0300

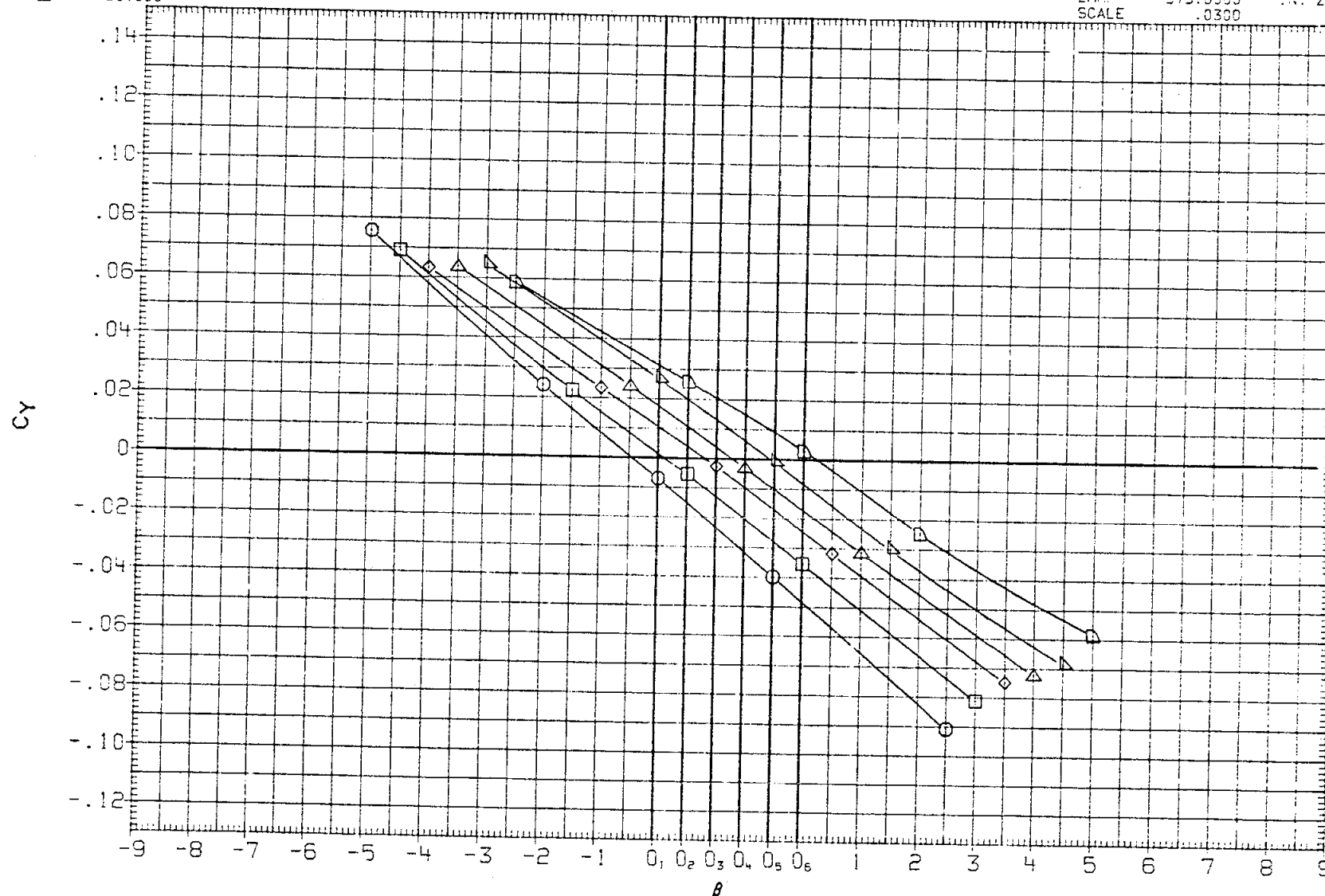


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

SYMBOL

ALPHA  
0.000  
4.000  
8.000  
12.000  
16.000  
20.000

MACH  
ATLRON

PARAMETRIC VALUES  
1.750 ELEVON  
1.000 BDFLAP

1.000  
-7.170

DATASET  
SE7913  
SE7915  
SE7917

BETA  
-5.000  
0.000  
5.000

DATASET  
SE7914  
SE7916

BETA  
-5.000  
5.000

REFERENCE INFORMATION

STAY 2690.0000  
LREF 478.2000  
BREF 936.6600  
VMRP 1075.6900  
VWRP 100000  
ZWRP 375.0000  
SCALE 0.000

CAUT.  
IN.  
IN.  
IN. XO  
IN. YO  
IN. ZO

Cy

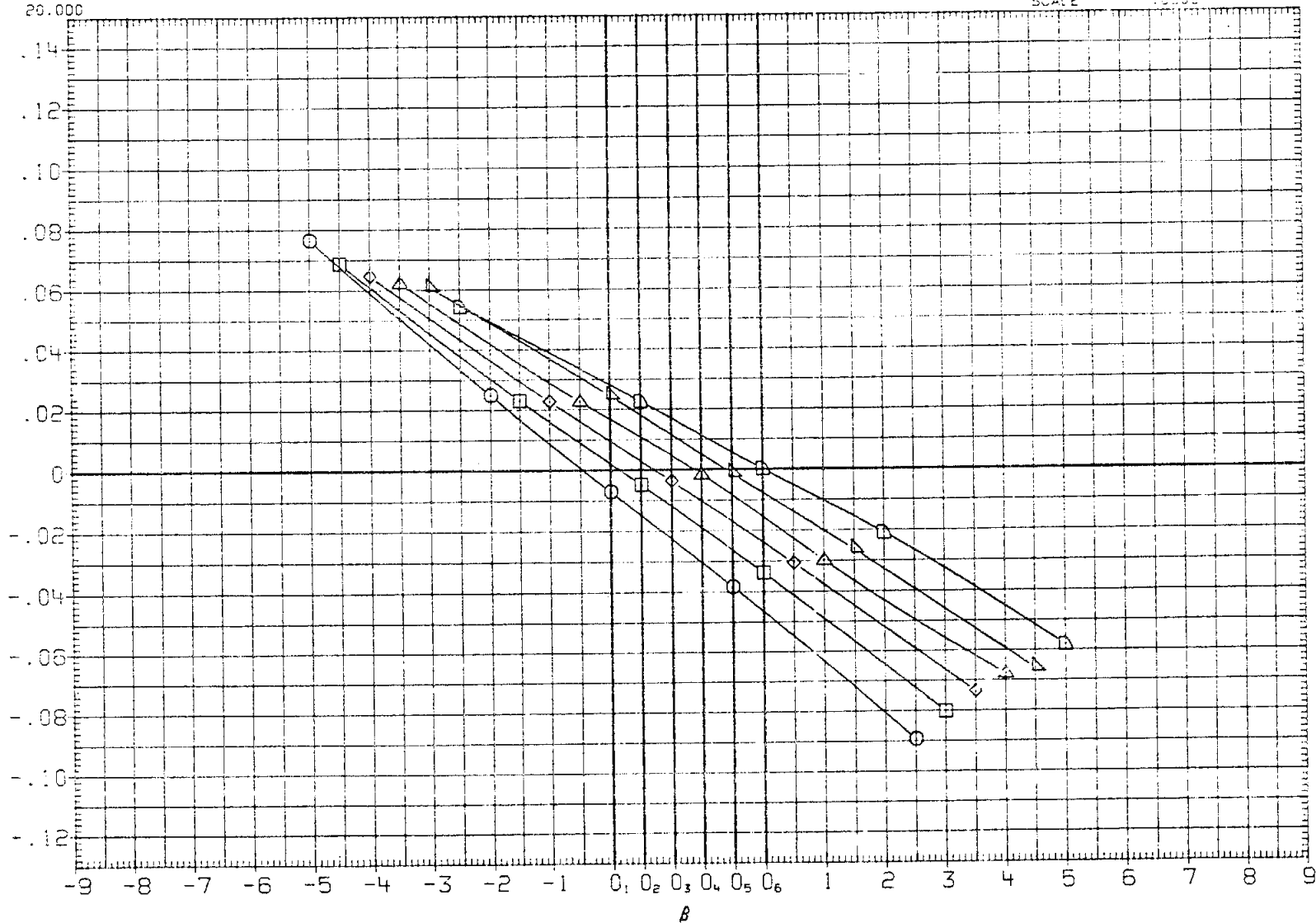


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

(SE7913) ARC 11-97-87-094 0A161 ORBITER

SYMBOL	ALPHA	MACH	PARAMETRIC	VALUES	ELEVON	BDFLAP	SE7913	BETA	SE7914	BETA	SE7916	BETA	REFERENCE INFORMATION
0110411	.000	2.000	.000	.000	.000	-7.170	SE7913	-5.000	SE7914	-2.000	SE7916	2.000	SREF 2690.0000 SQ.FT.
	4.000	AILRON					SE7915	.000					LREF 474.8000 IN.
	9.000						SE7917	5.000					BREF 936.6800 IN.
	12.000												XMRP 1075.6800 IN. XO
	16.000												YMRP .0000 IN. YO
	20.000												ZMRP 375.0000 IN. ZO
													SCALE .0700

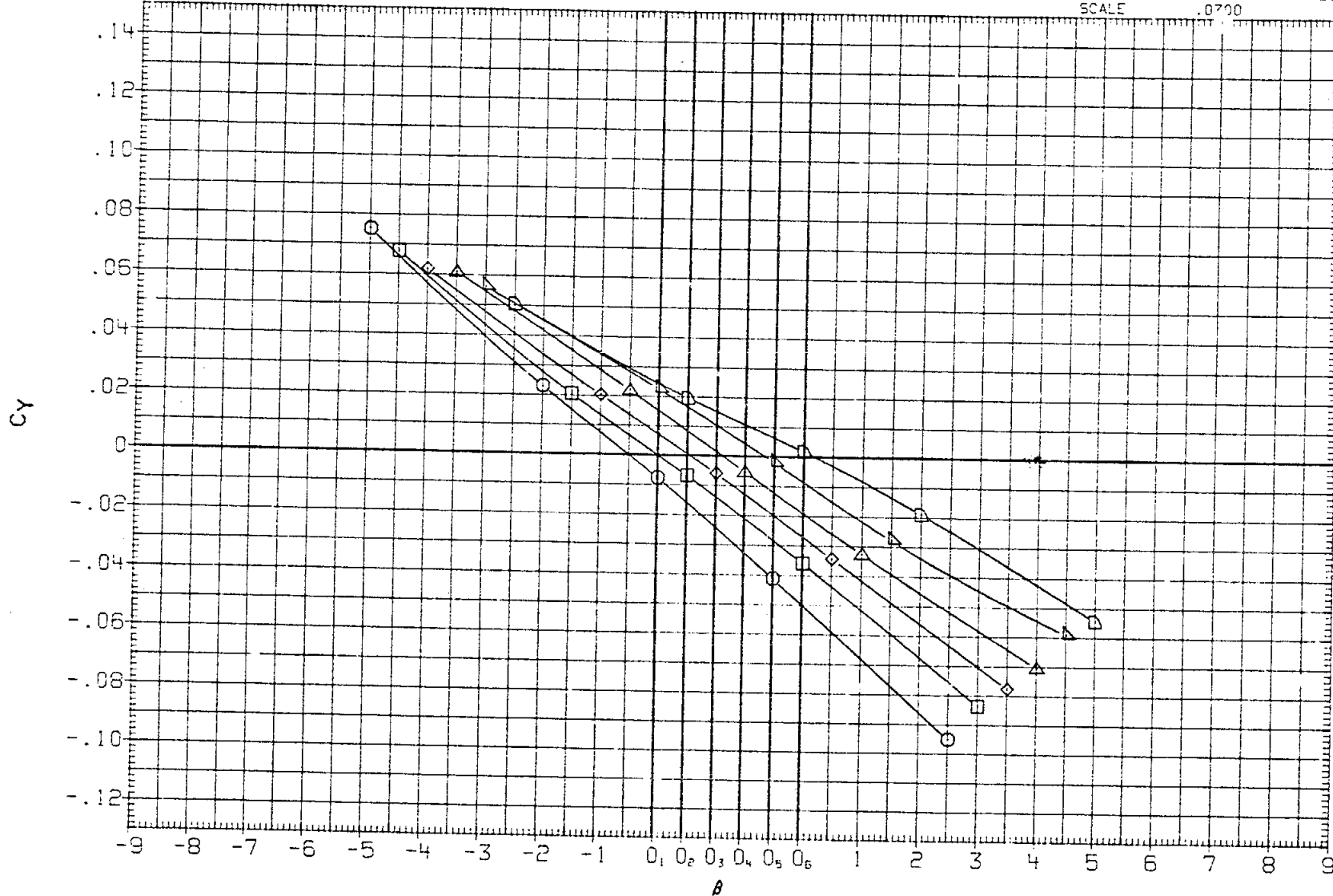


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATAFILE

BETA

REFERENCE INFORMATION

000000  
000000  
000000  
000000  
000000  
000000  
000000  
0000000.000  
4.000  
8.000  
12.000  
16.000  
20.000MACH  
AIRLON2.250  
1.000ELEVON  
BDFLAP1.000  
-7.170SE7913  
SE7915  
SE7917-5.000  
1.000  
5.000SE7914  
SE79162.000  
2.000

REF	2690.0000	EQ. 1
REF	471.8000	IN
BREF	938.6000	IN
XYMP	1078.6800	IN, XO
YMRP	1.0000	IN, YO
ZMRP	375.0000	IN, ZO
SCALE	.0300	

CY

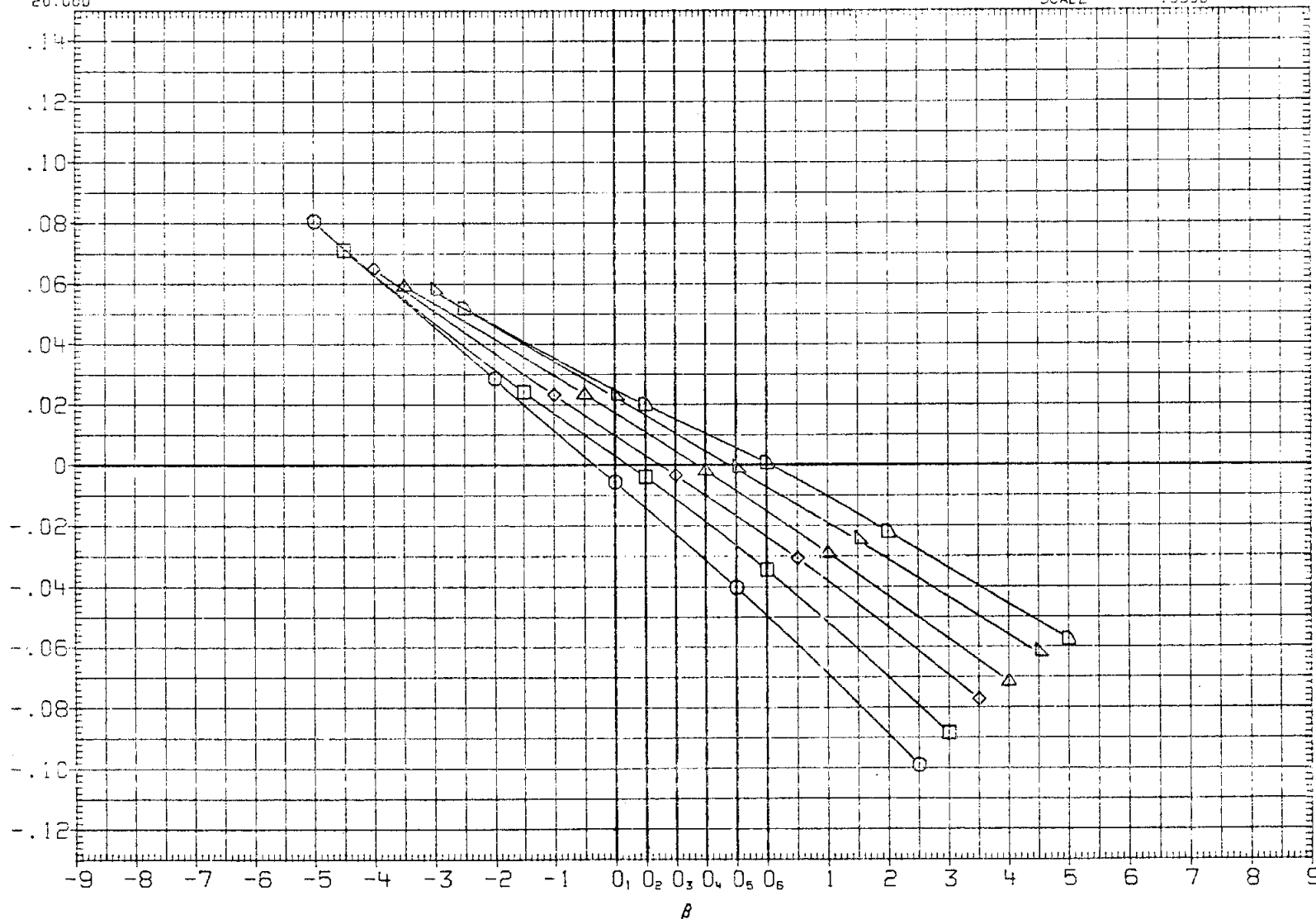


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA



(SE7913) ARC 11-97-87-094 OA161 ORBITER

ARC 11 37 37.834 SATURN ORBITER										REFERENCE INFORMATION		
SYMBOL	ALPHA		PARAMETRIC VALUES		DATASET	BETA	DATASET	BETA				
○	.000	MACH	2.500	ELEVON	.000	SE7913	-5.000	SE7914	-2.000	SREF	2690.0000	SQ. FT.
◇	4.000	AILRON	.000	BDFLAP	-7.170	SE7915	.000	SE7916	2.000	LREF	474.8000	IN.
△	8.000									BREF	936.6800	IN.
▽	12.000									XMRP	1076.6800	IN. XO
□	16.000									YMRP	.0000	IN. YO
◇	20.000									ZMRP	375.0000	IN. ZO
										SCALE	.0300	

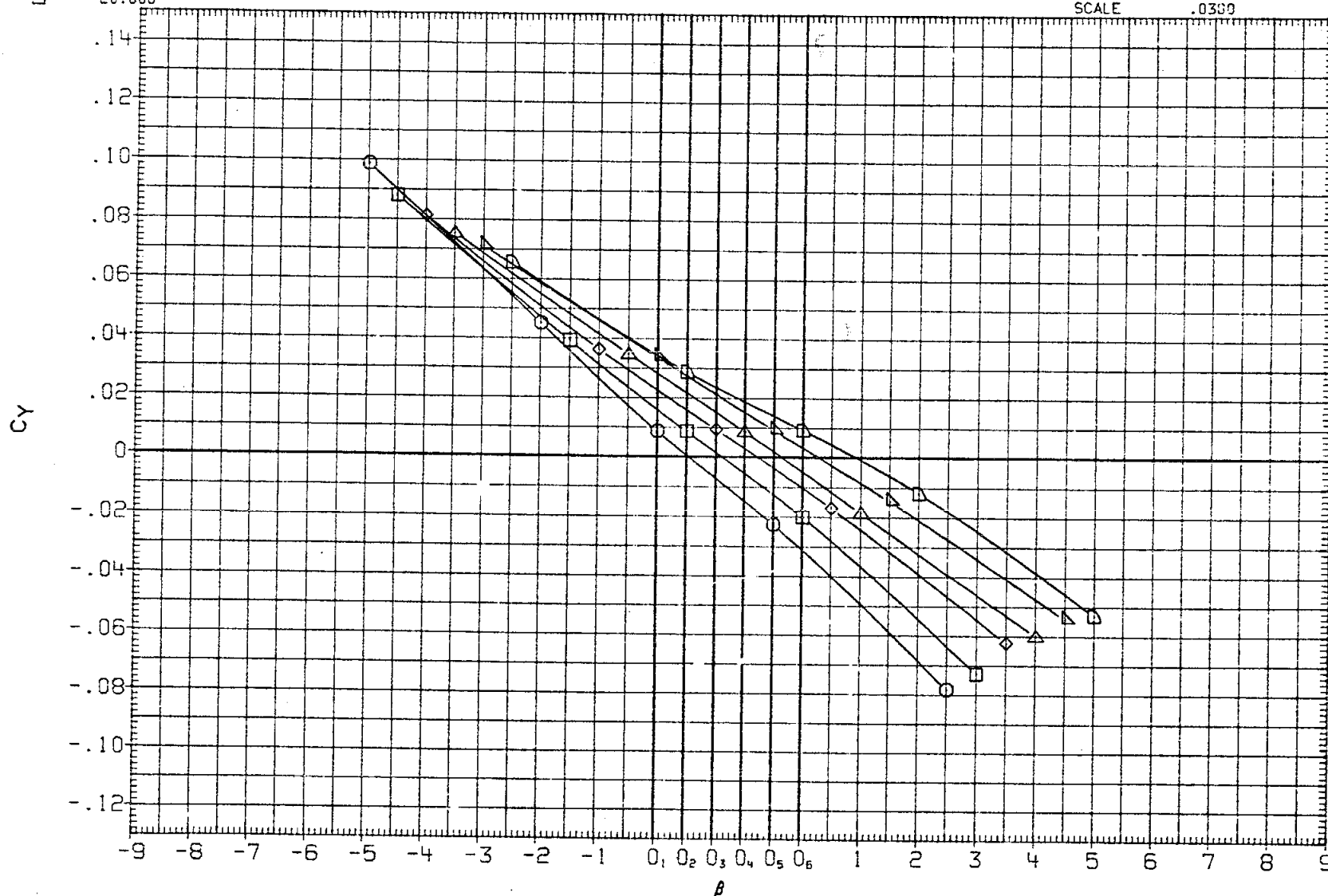


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

.000  
 4.000  
 8.000  
 12.000  
 16.000  
 20.000

MACH  
AIRON

3.000	ELEVON
.000	BDFLAF

ELEVON  
BDFLAF

-7.170

SE7913  
SE7915  
SE7917

5.000  
.000  
5.000

SE 7917  
SE 7916

2.000

SCALE	2690.0000	EQ.FT.
LRCH	474.0000	IN.
BREF	938.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

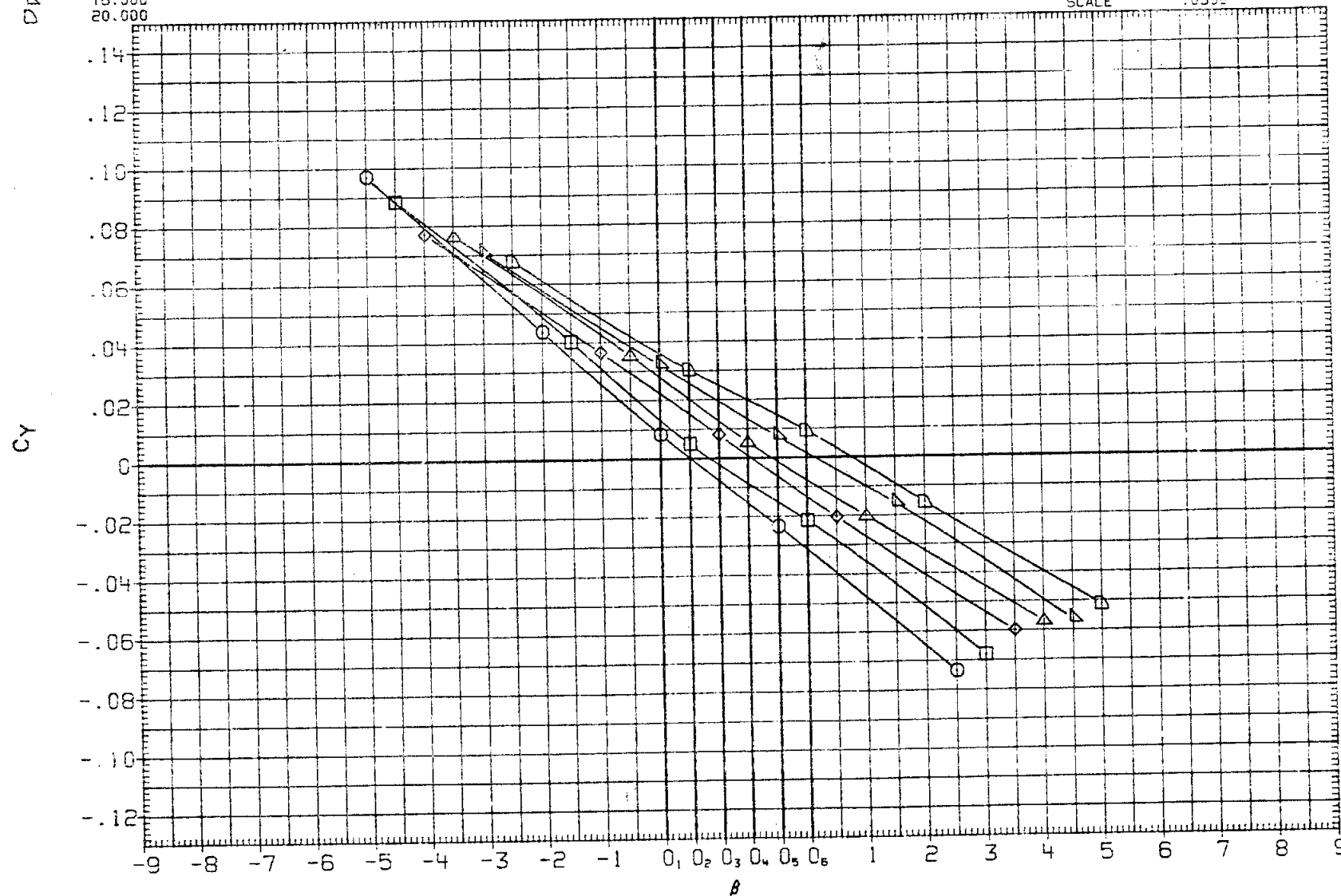


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

(SE7913) ARC 11-97-87-094 0A161 ORBITER

SYMBOL  
○  
□  
◇  
△  
▽  
◇  
□

ALPHA  
.000  
4.000  
8.000  
12.000  
16.000  
20.000

MACH  
3.500  
AILRON  
.000

PARAMETRIC VALUES  
ELEVON  
BDFLAP

.000  
-7.170

DATASET  
SE7913  
SE7915  
SE7917

BETA  
-5.000  
.000  
5.000

DATASET  
SE7914  
SE7916

BETA  
-2.000  
2.000

REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

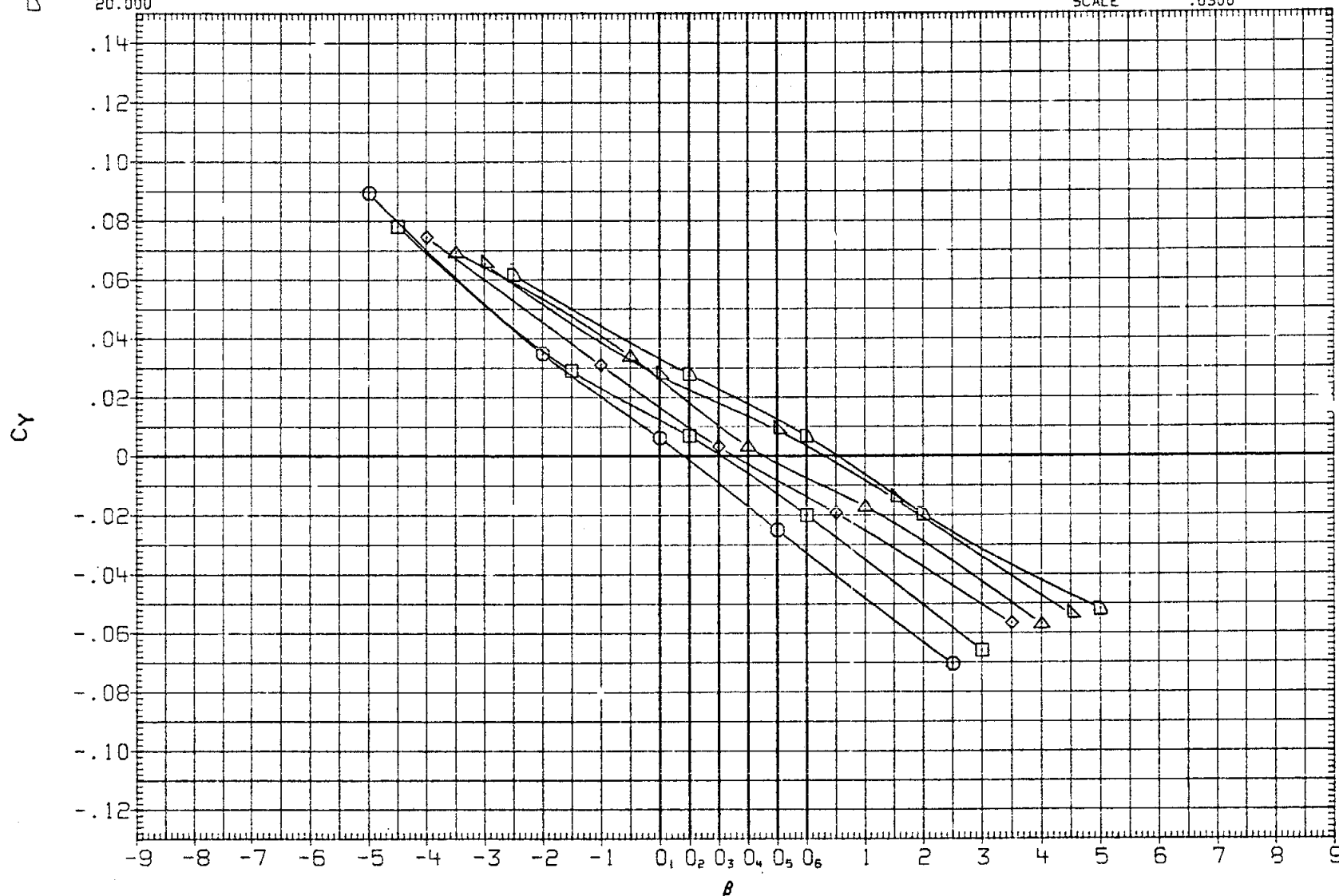


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

000

0.000

MACH

.800

ELEVON

000

SE7913

-5.000

SE7914

-2.000

2690.0000

60. FT.

000

4.000

AILRON

.000

BDFLAP

-7.175

SE7915

.000

SE7916

2.000

474.8000

IN.

000

8.000

935.6800

IN.

000

12.000

1075.6800

IN. XO

000

16.000

.0000

IN. YO

000

20.000

375.0000

IN. ZO

SCALE

.0300

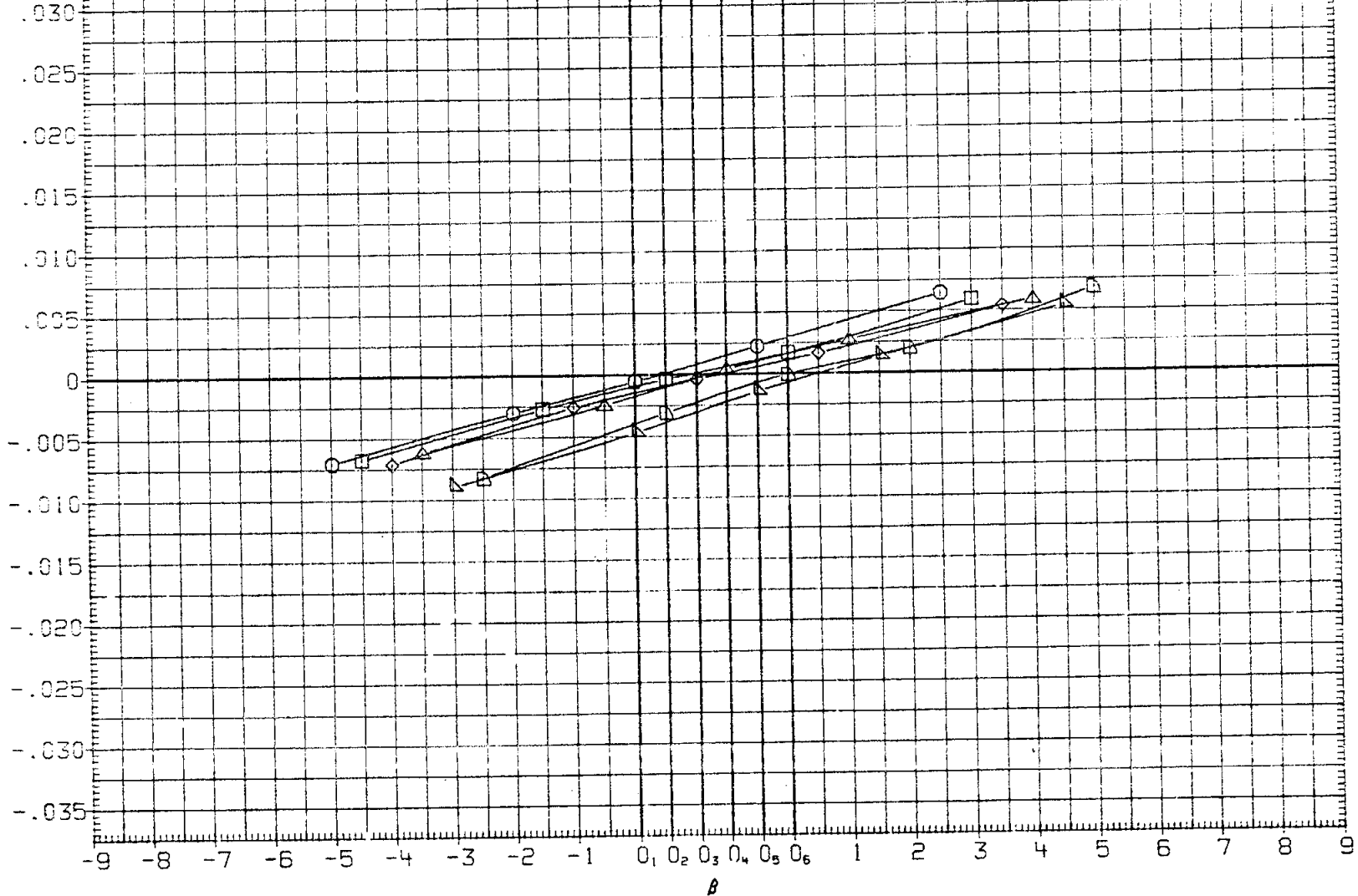
 $C_n$  (BODY)

FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

(SE7913) ARC 11-97-87-094 0A161 ORBITER

SYMBOL										REFERENCE INFORMATION		
ALPHA		PARAMETRIC VALUES			DATASET		BETA		DATASET			
○	.000	MACH	.700	ELEVON	.000	SE7913	-5.000	SE7914	-2.000	SREF	2690.0000	SQ.FT.
◇	4.000	AILRON	.000	BDFLAP	-7.170	SE7915	.000	SE7916	2.000	LREF	474.8000	IN.
□	8.000					SE7917	5.000			BREF	936.6800	IN.
△	12.000									XMRP	1076.6800	IN. XO
▽	16.000									YMRP	.0000	IN. YO
◇	20.000									ZMRP	375.0000	IN. ZO
										SCALE	.0300	

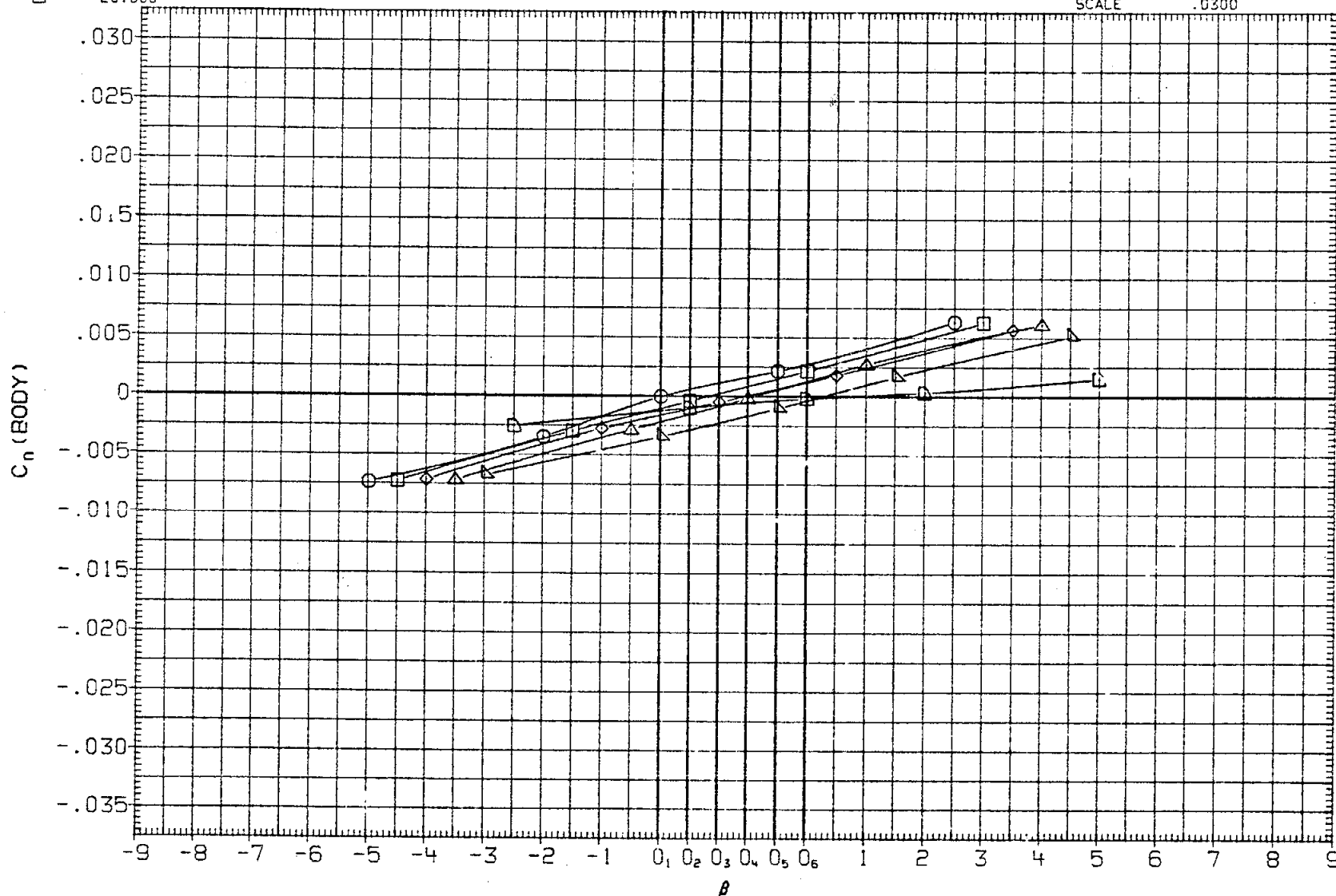


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

O  
□  
◇  
△  
▽1.000  
4.000  
8.000  
12.000  
16.000  
20.000MACH  
ATLRON.600  
.000ELEVON  
BDFLAP.000  
-7.170SE7913  
SE7915  
SE7917-5.000  
.000  
5.000SE7914  
SE7916-2.000  
2.000

ORF	2690.0000	SC.F.T.
URET	474.6000	IN.
BREF	935.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.3330	

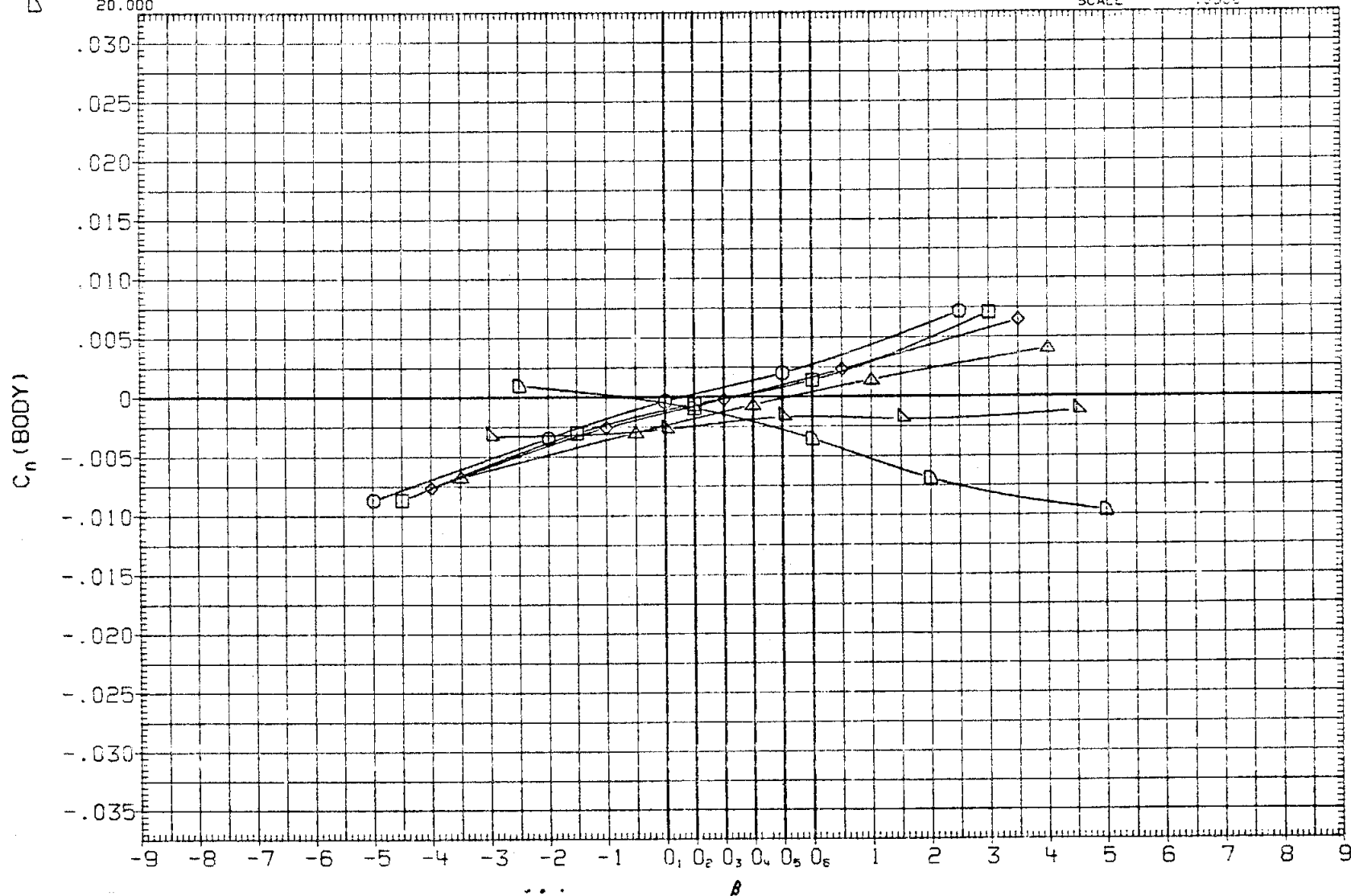


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

(SE7913) ARC 11-97-87-094 0A161 ORBITER

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	ELEVON	BDFLAP	DATASET	BETA	DATASET	BETA	REFERENCE INFORMATION
○	.000					SE7913	-5.000	SE7914	-2.000	SREF 2690.0000 SQ.FT.
□	4.000	A1L1R0N	.650			SE7915	.000	SE7916	2.000	LREF 474.8000 IN.
◇	8.000		.000							BREF 936.6800 IN.
△	12.000									XMREF 1076.6800 IN. X0
▽	16.000									YMREF .0000 IN. Y0
◻	20.000									ZMREF 375.0000 IN. Z0
										SCALE .0300

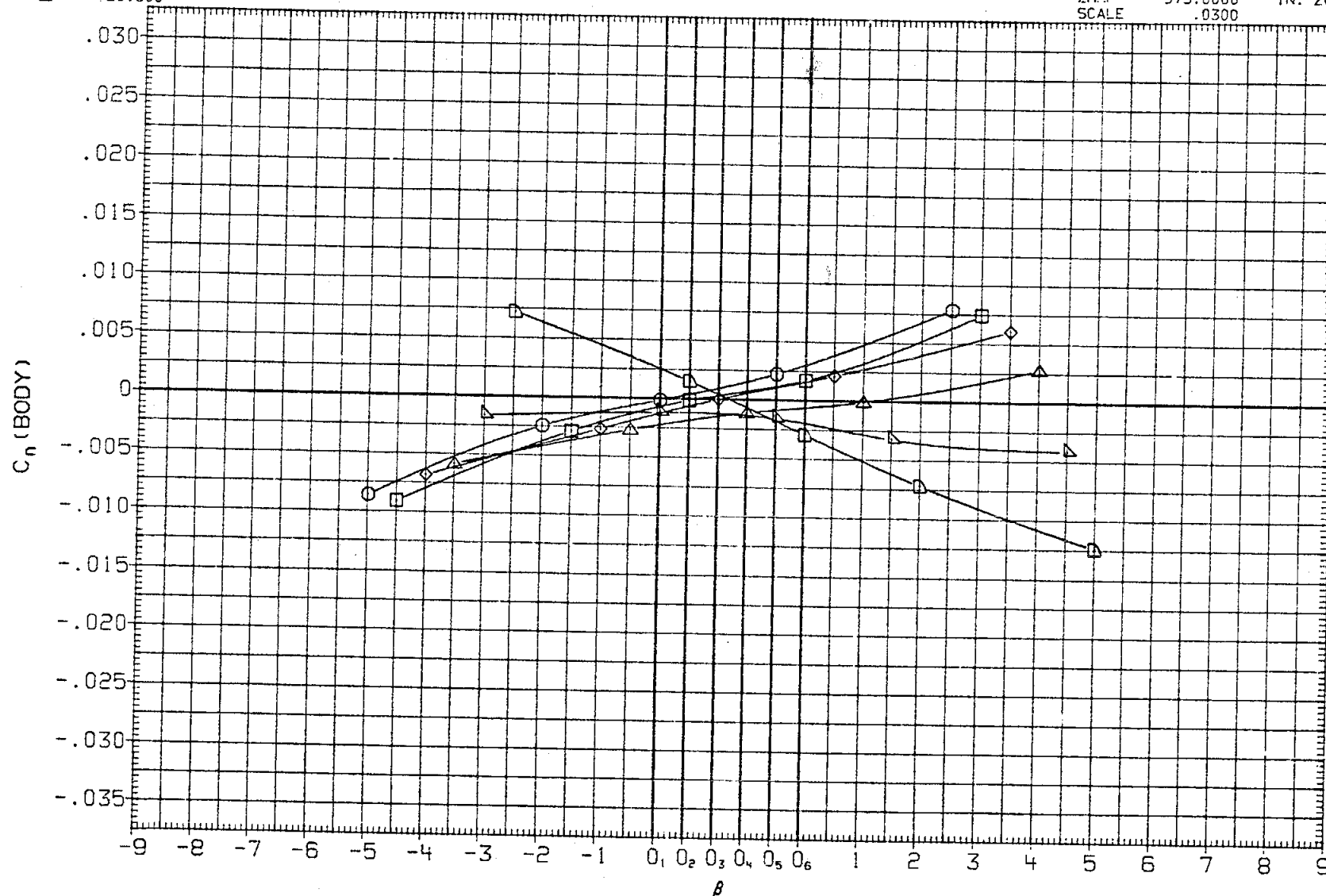


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	ELEVON	BDFLAP	DATASET	BETA
○	.000	.900		.000		SE7913	-8.000
□	4.000	.000		-7.170		SE7915	.000
◇	8.000					SE7917	5.000
△	12.000						
▽	16.000						
◇	20.000						

REFERENCE INFORMATION		
BRP	2590.0000	50.00
CRP	474.8000	IN.
BRP	936.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	0300	

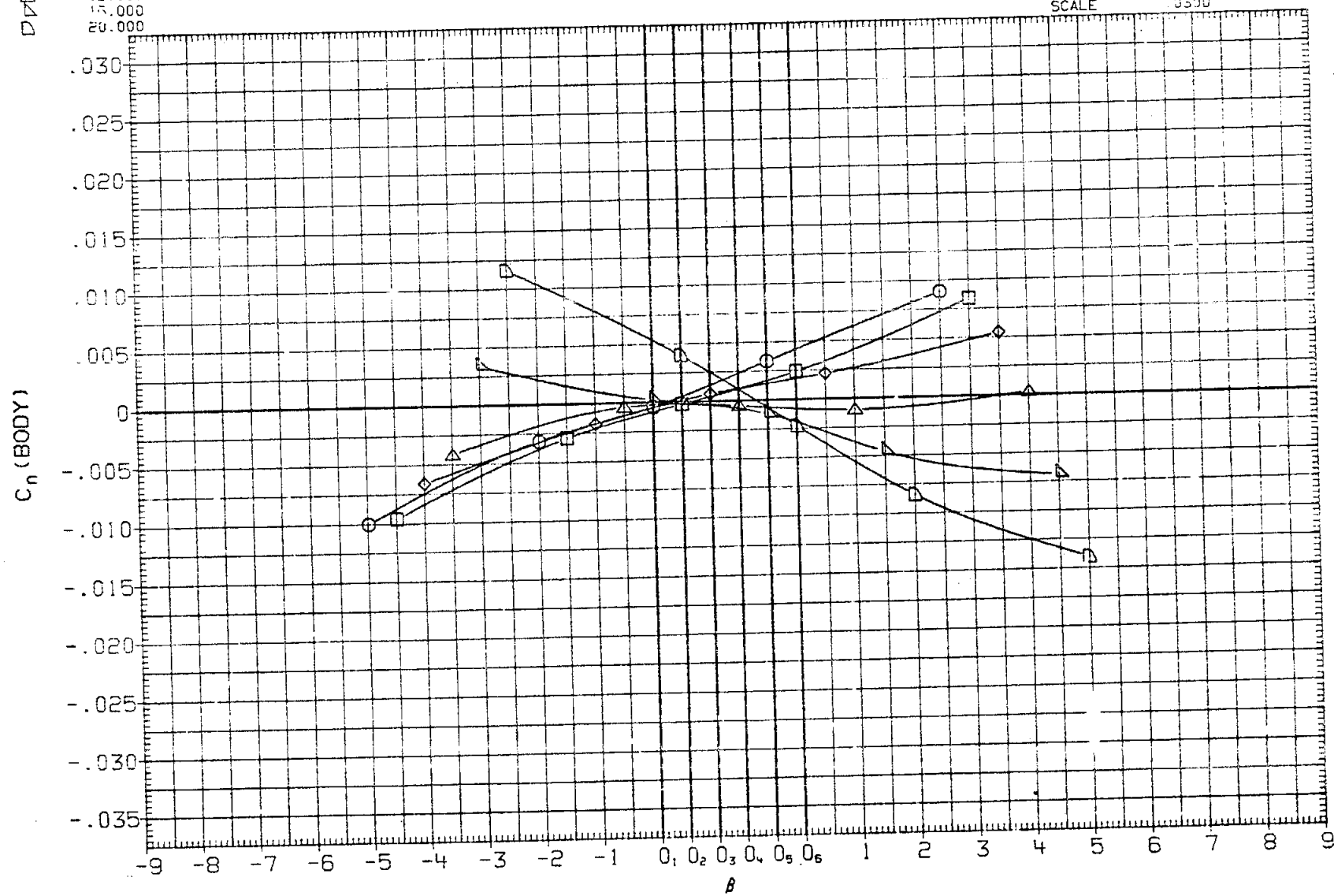


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA



(SE7913) ARC 11-97-87-094 0A161 ORBITER

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	ELEVON	BD FLAP	DATASET	BETA	DATASET	BETA	REFERENCE INFORMATION
000000	.000	.950		.000		SE7913	-5.000	SE7914	-2.000	SREF 2690.0000 SQ.FT.
000000	4.000					SE7915	.000	SE7916	2.000	LREF 474.8000 IN.
000000	8.000									BREF 936.6800 IN.
000000	12.000									XMRP 1076.5800 IN. XO
000000	16.000									YMRP .0000 IN. YO
000000	20.000									ZMRP 375.0000 IN. ZO
										SCALE .0300

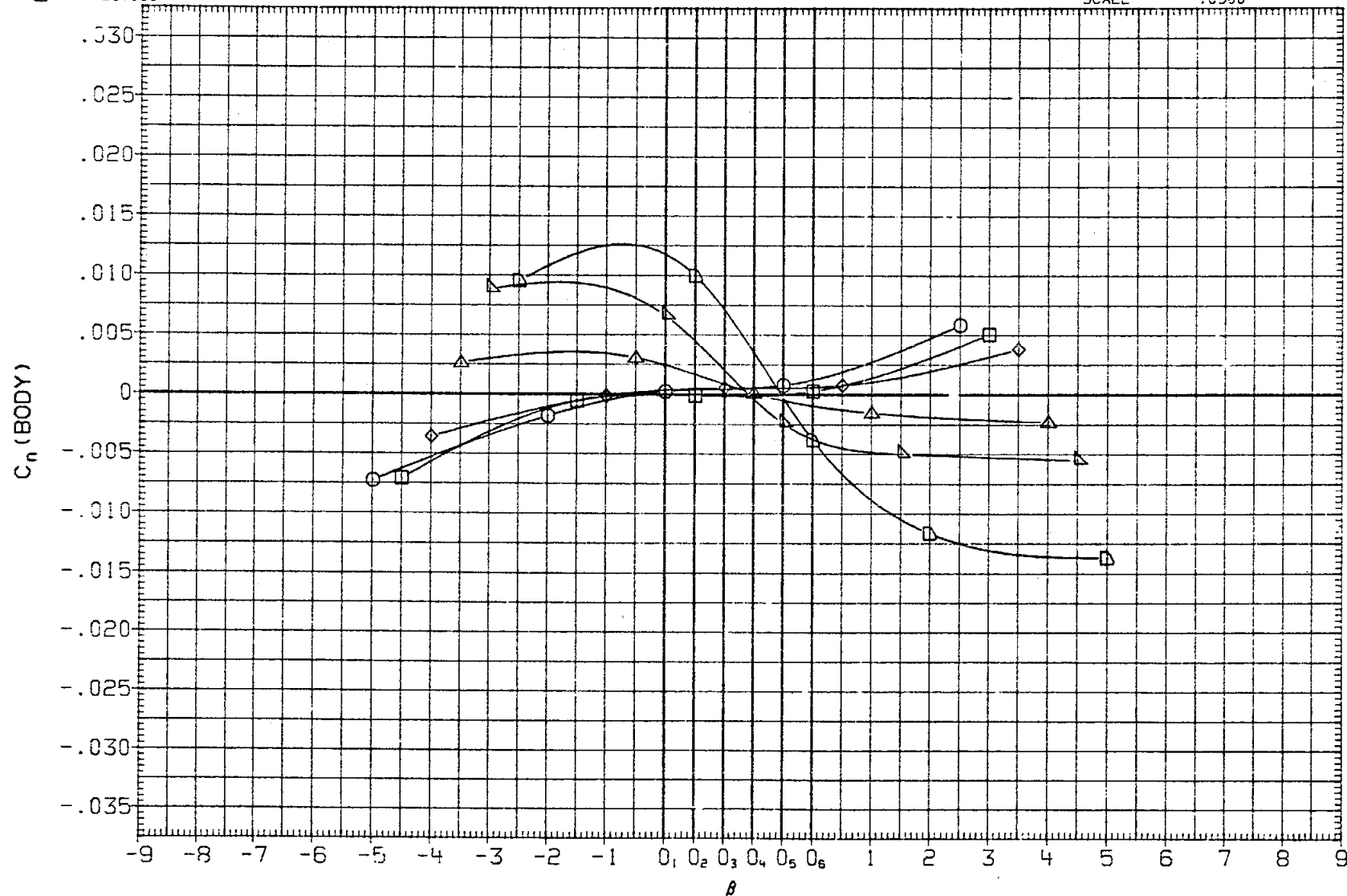


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

SYMBOL

ALPHA

PARAMETER VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

REF	2590.0000	SO. 77
REF	474.8000	IN.
BREF	935.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	370.0000	IN. ZO
SCALE	0300	

0.000  
4.000  
8.000  
12.000  
16.000  
20.000

MACH  
AILRON

.980  
.000

ELEVON  
BDFLAP

.000  
-7.170

SE7913  
SE7915  
SE7917

-5.000  
.000  
5.000

SE7914  
SE7916

-2.000  
2.000

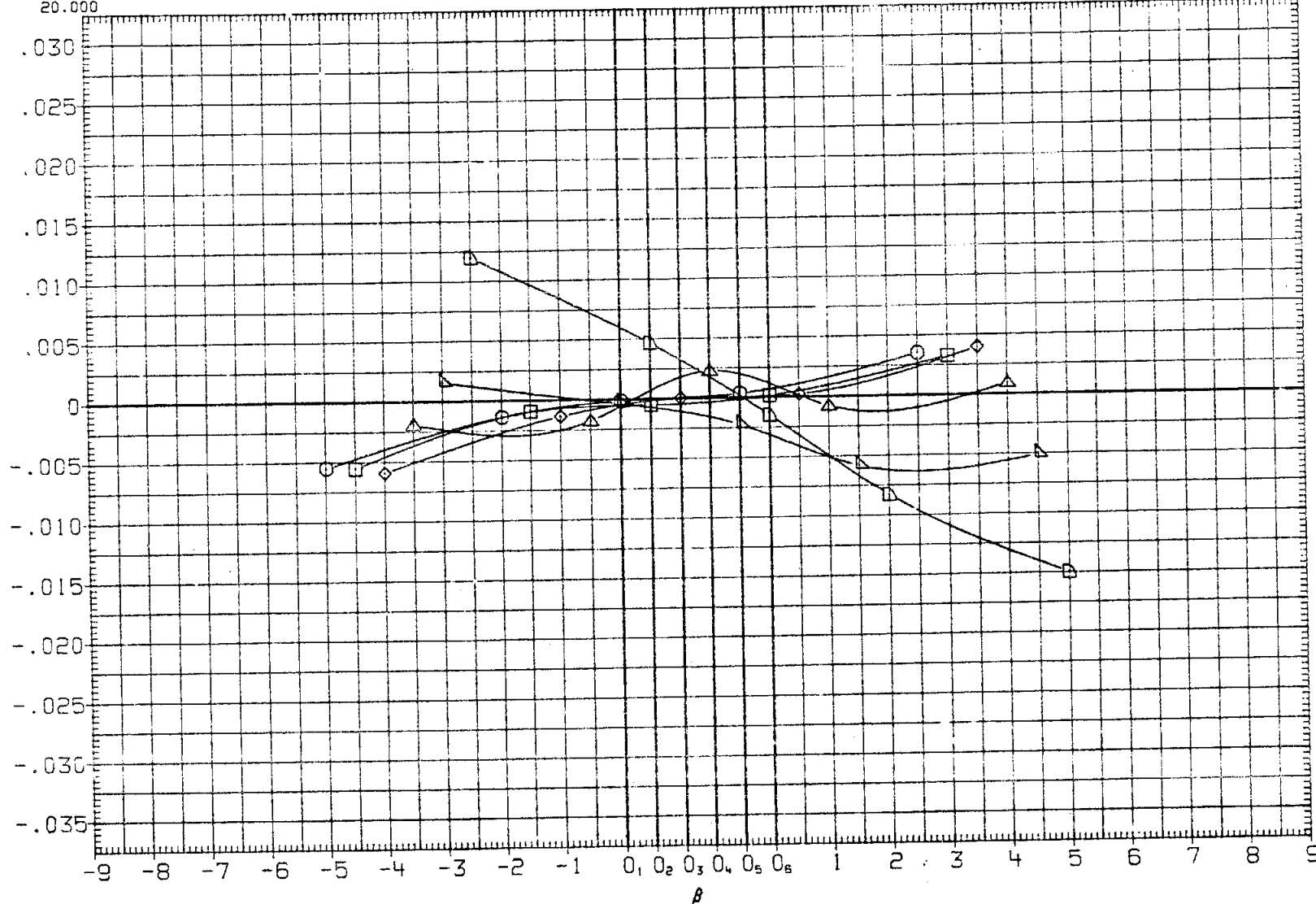
 $C_n$  (BODY)


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

(SE7913) ARC 11-97-87-094 0A161 ORBITER

SYMBOL	ALPHA	PARAMETRIC VALUES		DATASET	BETA	DATASET	BETA	REFERENCE INFORMATION		
○	.000	MACH	1.050	ELEVON	.000	SE7913	-5.000	SREF	2690.0000	SQ.FT.
□	4.000	AILRON	.000	BOFLAP	-7.170	SE7915	.000	LREF	474.8000	IN.
◇	8.000					SE7916	2.000	BREF	936.6800	IN.
△	12.000							XMRP	1076.6800	IN. XO
▽	16.000							YMRP	.0000	IN. YO
◇	20.000							ZMRP	375.0000	IN. ZO
								SCALE	.0300	

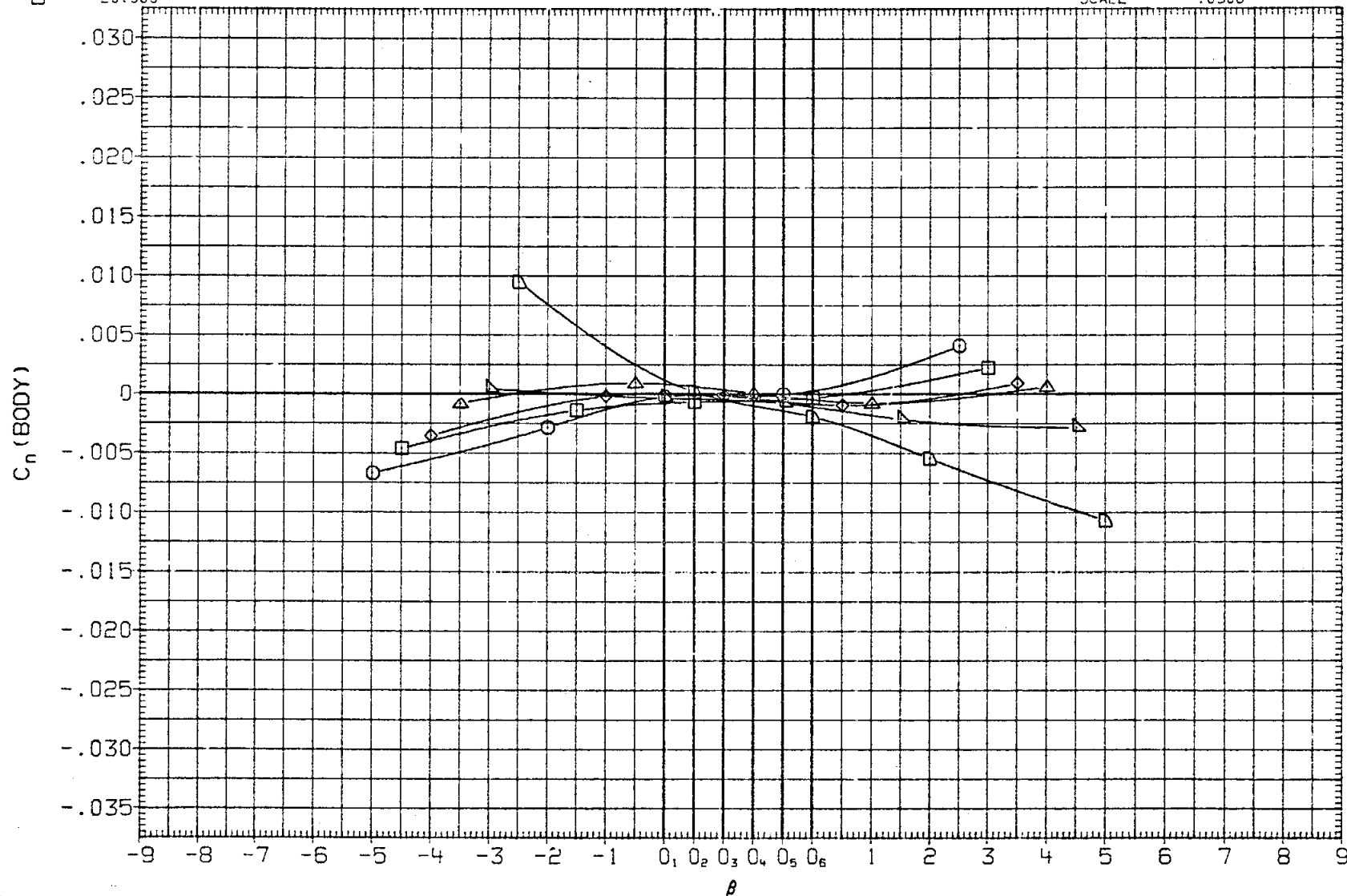


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

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MACH  
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1.100  
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ELEVON  
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 -7.170

SE7913  
 SE7915  
 SE7917

-5.000  
 .000  
 5.000

SE7914  
 SE7916

-2.000  
 2.000

SFTT 2680.0000 SCFT.  
 LREF 474.8000 IN.  
 GREF 936.6800 IN.  
 XMRP 1076.6900 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

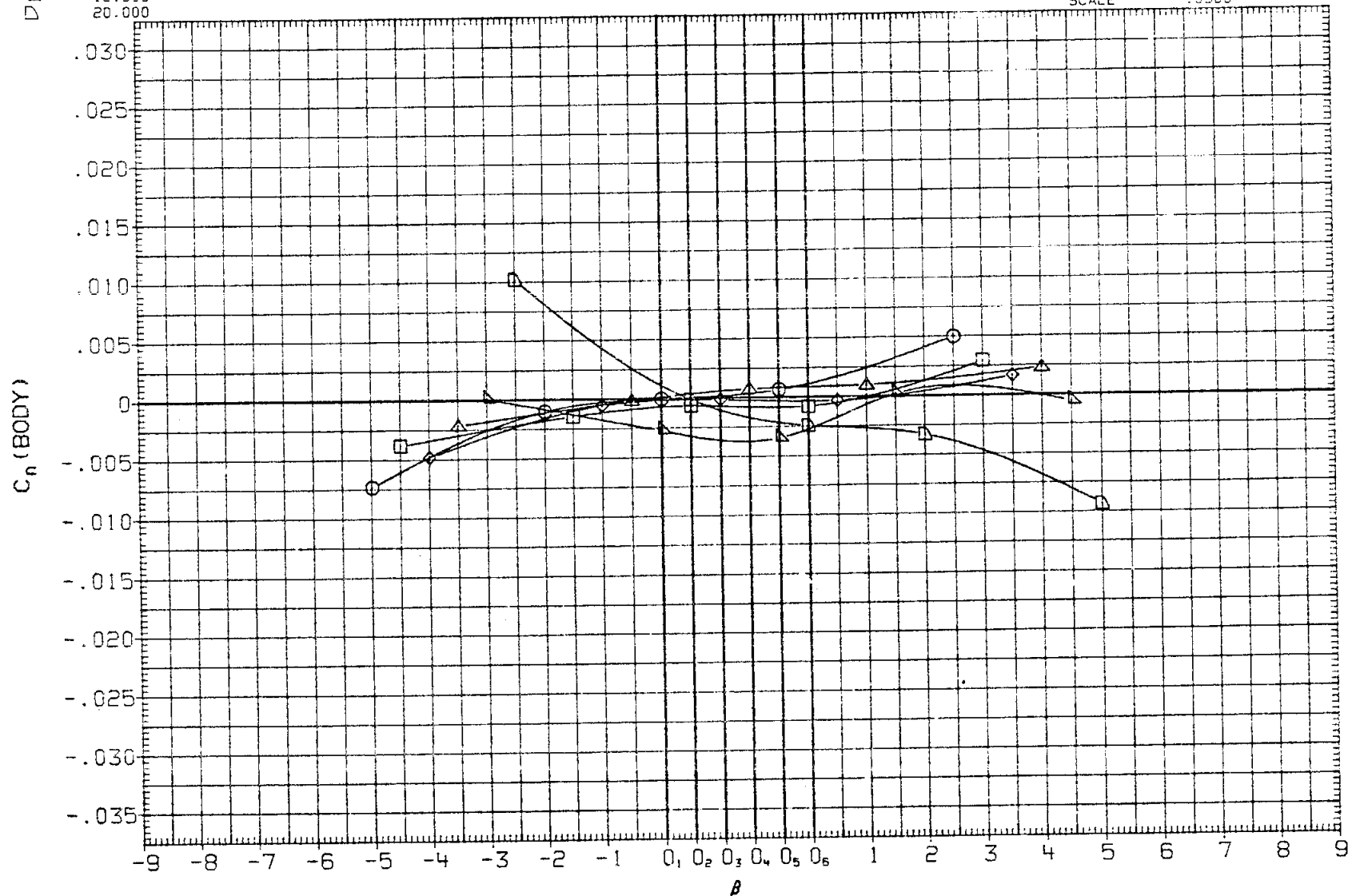


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

(SE7913) ARC 11-97-87-094 0A161 ORBITER

SYMBOL  
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AILRON

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1.150  
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ELEVON  
BDFLAP

.000  
-7.170

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SE7913  
SE7915  
SE7917

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-5.000  
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5.000

DATASET  
SE7914  
SE7916

BETA  
-2.000  
2.000

REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1075.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

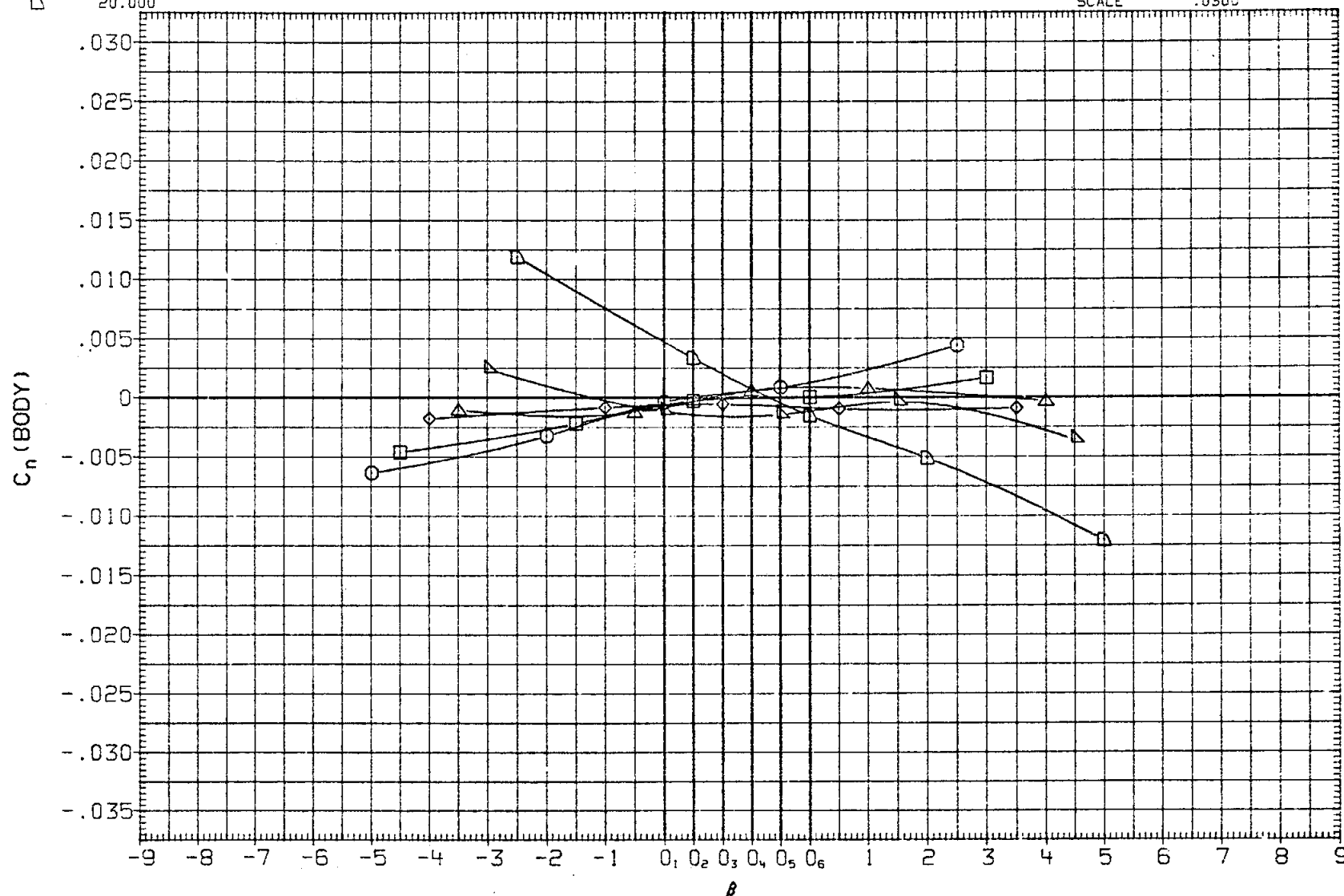


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	ELEVON	BOFLAP	DATASET	BETA	DATASET	BETA	REFERENCE INFORMATION		
										SHEET	2890.0000	50. FT.
○	0.000	4.000	1.200	0.000	SE7913	-5.000	SE7914	-2.000	REF	474.6000	IN.	
□	4.000	4.000	1.000	0.000	SE7915	0.000	SE7916	2.000	REF	936.6800	IN.	
◇	8.000	4.000			SE7917	5.000			YMRP	1076.6800	IN.	XO
△	12.000	4.000							YMRP	0.0000	IN.	YO
▽	16.000	4.000							ZMRP	375.0000	IN.	ZO
◇	20.000	4.000							SCALE	0.3000		

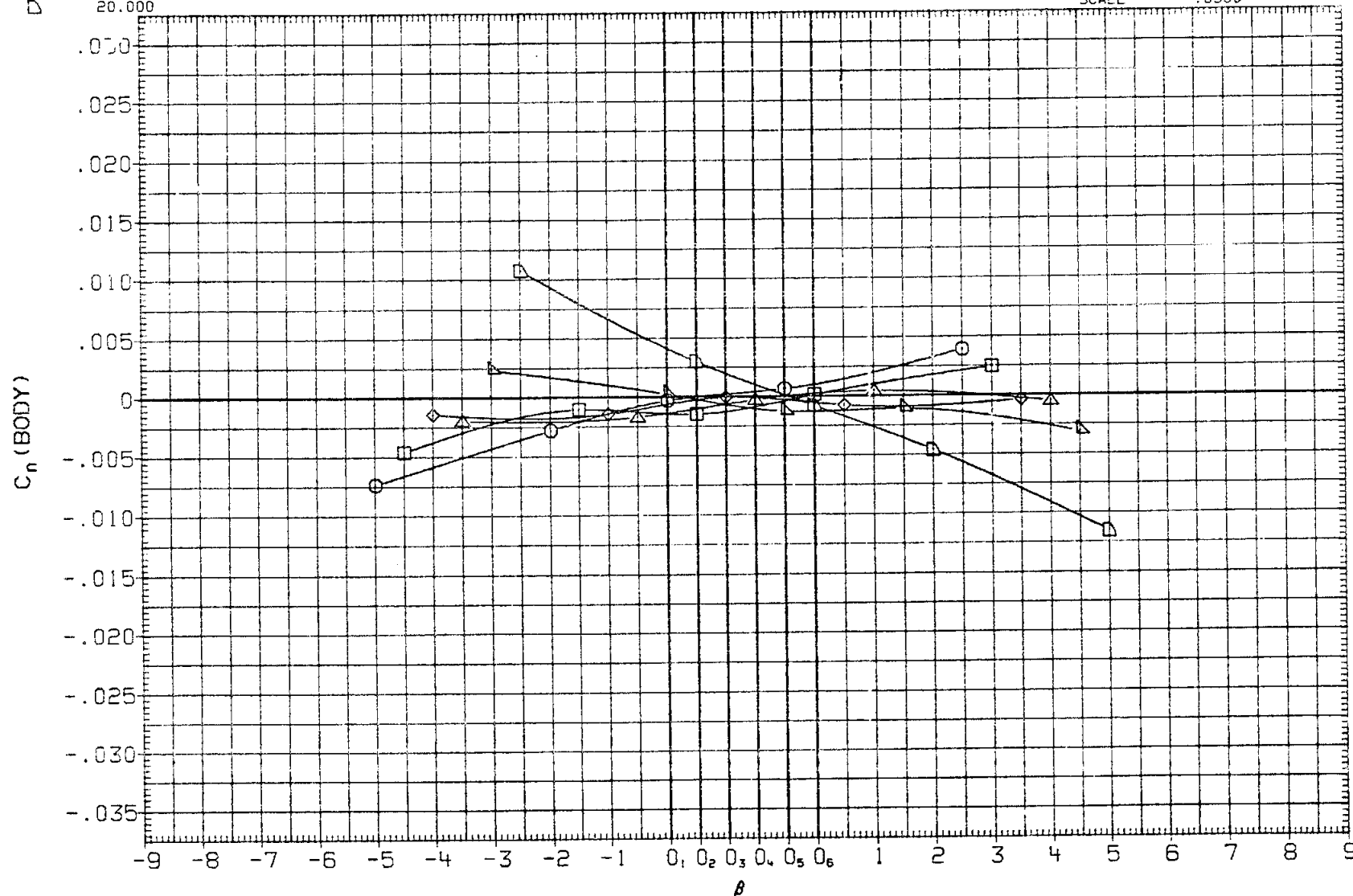


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

(SE7913) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	PARAMETRIC VALUES				DATASET		BETA			REFERENCE INFORMATION		
	ALPHA	MACH	ELEVON	BDFLAP						SREF	2690.0000	50.FT.
○	.000				SE7913	-5.000	SE7914	-2.000		LREF	474.8000	IN.
□	4.000	AILRON	.000	-7.170	SE7915	.000	SE7916	2.000		BREF	936.6800	IN.
◇	8.000				SE7917	5.000				XMRP	1076.6800	IN. XO
△	12.000									YMRP	.0000	IN. YO
▽	16.000									ZMRP	375.0000	IN. ZO
◇	20.000									SCALE	.0300	

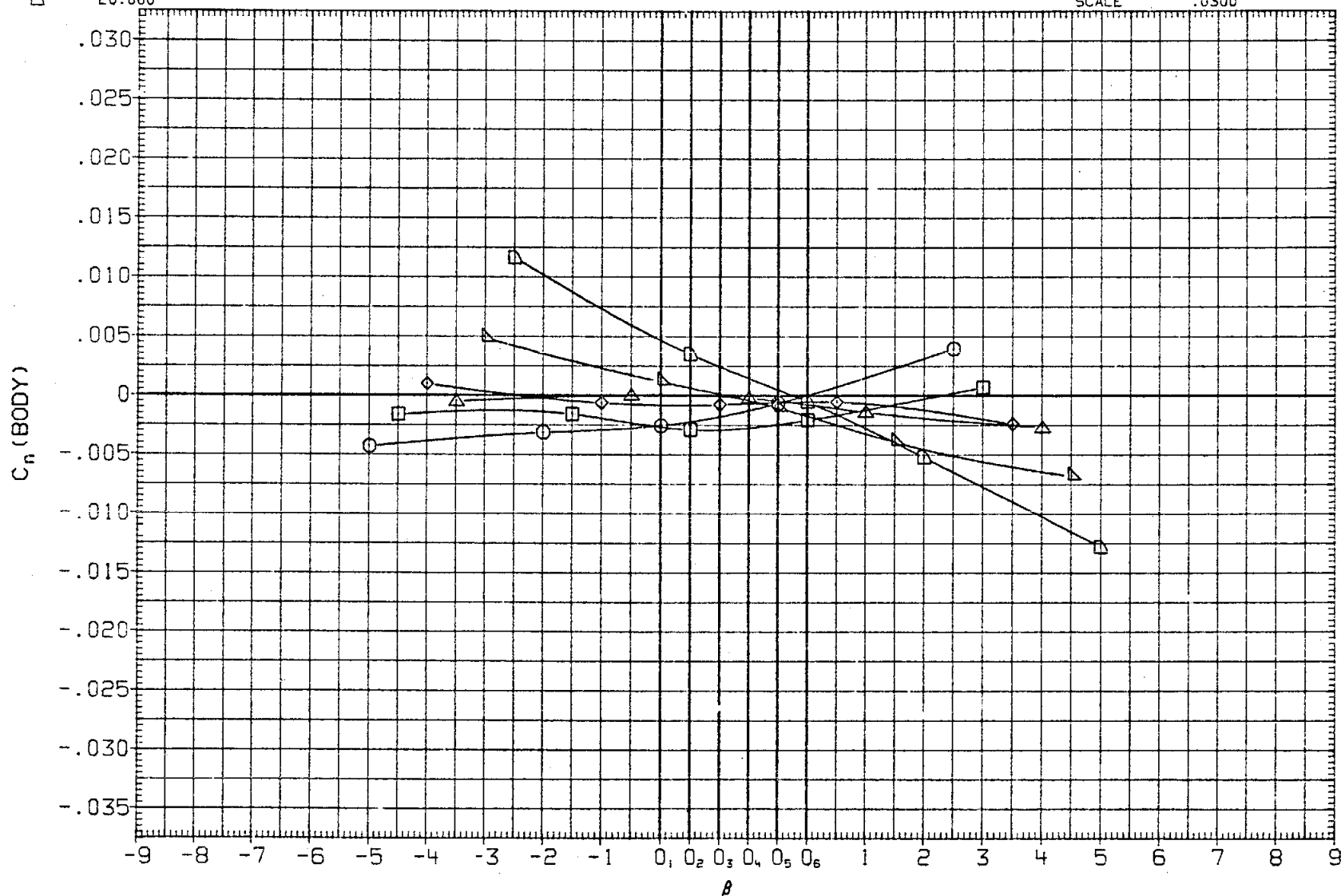


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

(SE7913) ARC 11-87-87-094 0A16 ORBITER

PARAMETRIC VALUES				DATASET	BETA	DATASET	BETA	REFERENCE INFORMATION		
SE7913	ALPHA	MACH	ELEVON	SE7913	-5.000	SE7914	-2.000	SREF	2590.0000	SQ.F.F.
SE7915	AILRON	BDPLAP	SE7915	.000	SE7916	2.000	LNREF	474.8000	IN.	
SE7917			SE7917	5.000			BREF	936.6800	IN.	
							XMPP	1076.6800	IN. XO	
							YMPP	.0000	IN. YO	
							ZMPP	375.0000	IN. ZO	
							SCALE	.0300		

0.000  
4.000  
8.000  
12.000  
16.000  
20.000

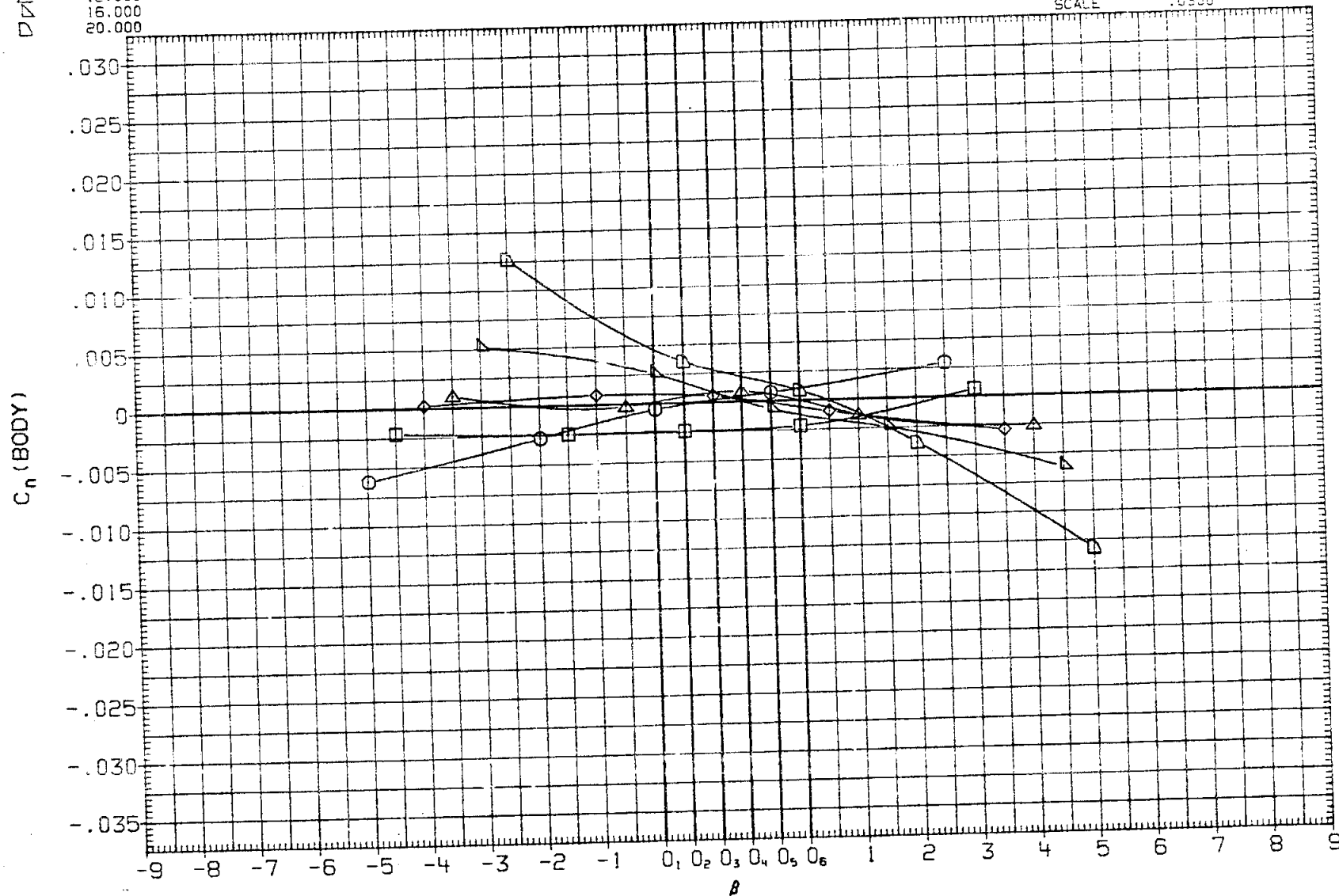


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA



(SE7913) ARC 11-97-87-094 0A161 ORBITER

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	ELEVON	BDFLAP	DATASET	BETA	DATASET	BETA	REFERENCE INFORMATION
○	.000	4.000	1.550	.000	.000	SE7913	-5.000	SE7914	-2.000	SREF 2690.0000 SQ. FT.
◇	4.000	8.000	.000	.000	-7.170	SE7915	.000	SE7916	2.000	LREF 474.8000 IN.
△	8.000	12.000								BREF 936.6800 IN.
▽	12.000	16.000								XMRP 1076.6800 IN. XO
□	16.000	20.000								YMRP .0000 IN. YO
										ZMRP 375.0000 IN. ZO
										SCALE .0300

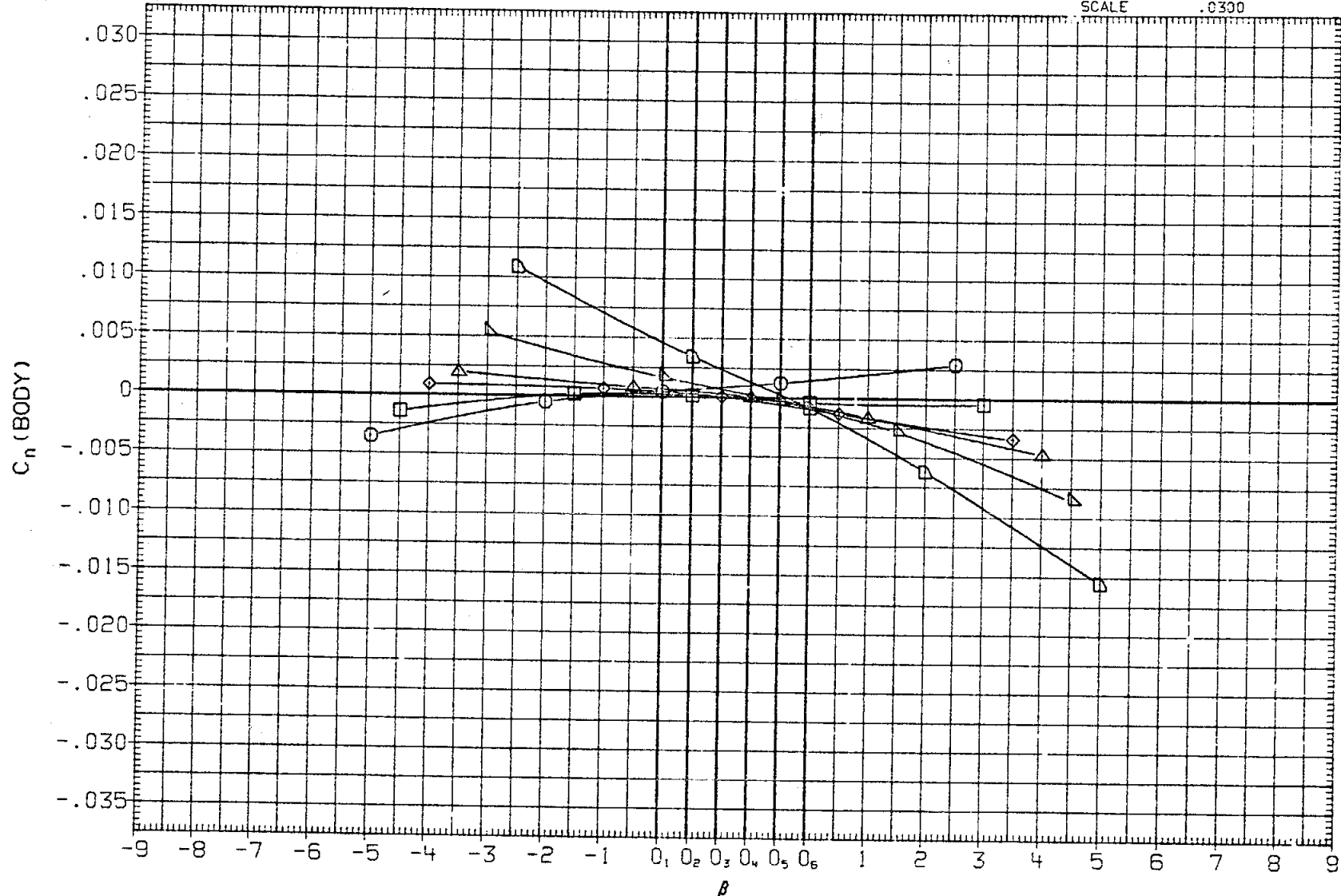


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

SYMBOL

ALPHA

MACH

PARAMETRIC VALUES

DATASET

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DATASET

BETA

REFERENCE INFORMATION

SREF	2690.0000	90 FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.8800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

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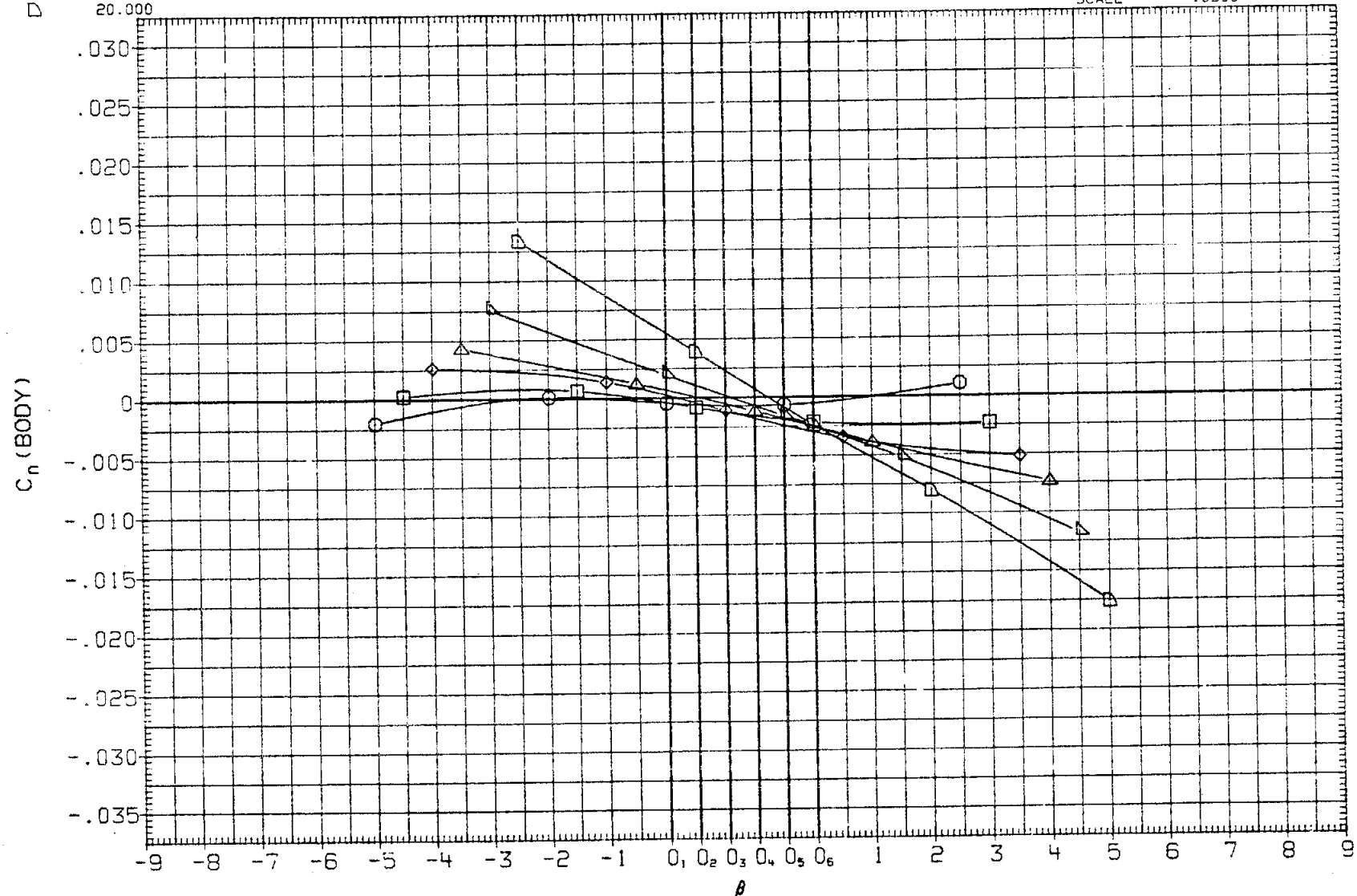


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

(SE7913) ARC 11-97-87-094 0A161 ORBITER

SYMBOL

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BDFLAP

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-7.170

SE7913  
SE7915  
SE7917

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SE7914  
SE7916

-2.000  
2.000

SREF 2590.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1075.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300



FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

SYMBOL

ALPHA

PARAMETRIC VALUES

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MACH  
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ELEVON  
BDFLAP

.000  
-7.170

SE7913  
SE7915  
SE7917

-5.000  
.000  
5.000

SE7914  
SE7916

-2.000  
2.000

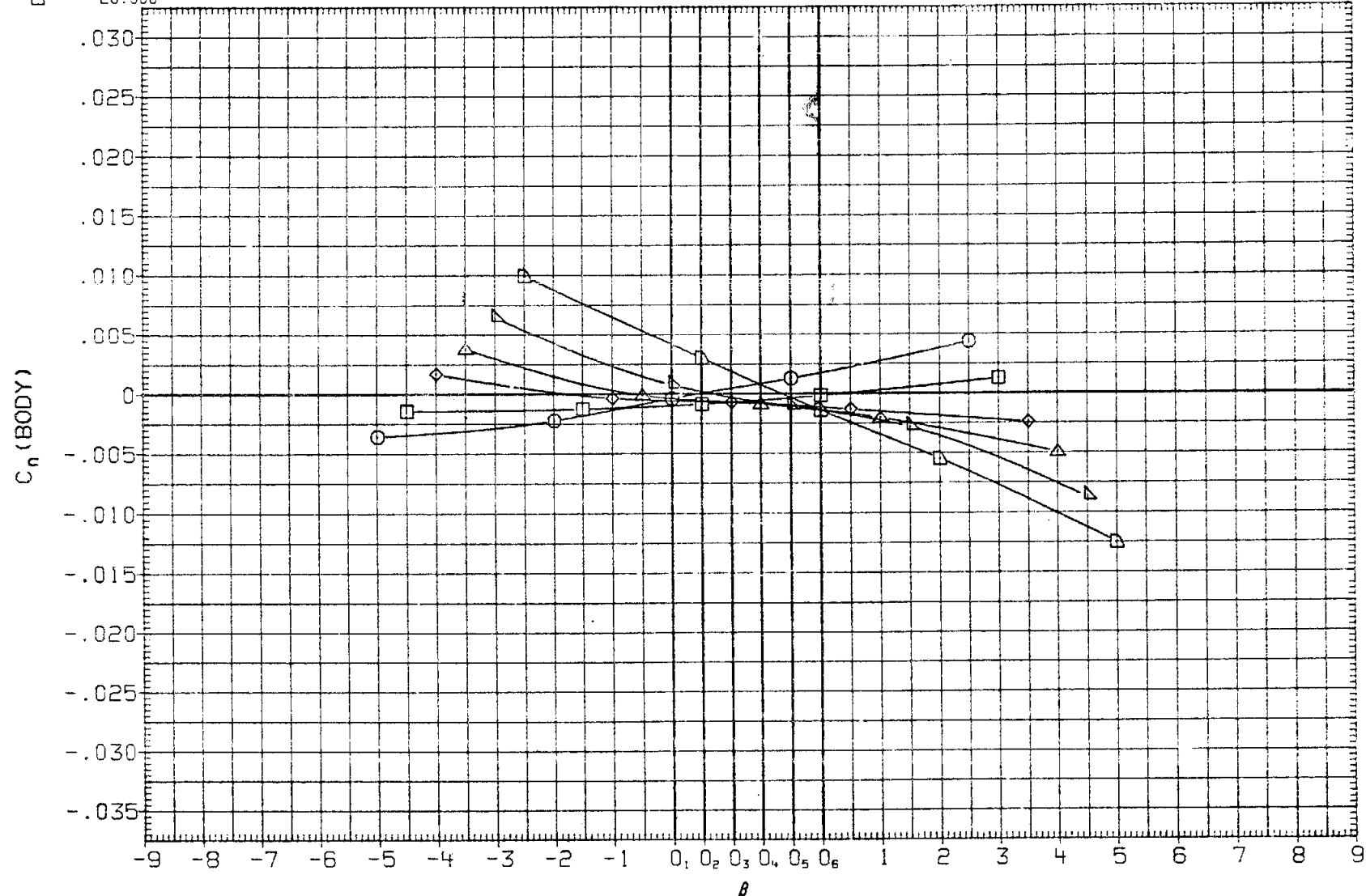
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LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. XC  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

(SE7913) ARC 11-97-87-094 0A161 ORBITER

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	ELEVON	BDFLAP	DATASET	BETA	DATASET	BETA	REFERENCE INFORMATION
○	.000	4.000	2.500	.000	.000	SE7913	-5.000	SE7914	-2.000	SREF 2690.0000 SQ.FT.
□	4.000	9.000	.000	-7.170	.000	SE7915	.000	SE7916	2.000	LREF 474.8000 IN.
◇	9.000	12.000								BREF 936.6800 IN.
△	12.000	16.000								XMRP 1076.6800 IN. XO
▽	16.000	20.000								YMRP .0000 IN. YO
◇										ZMRP 375.0000 IN. ZO
										SCALE .0300

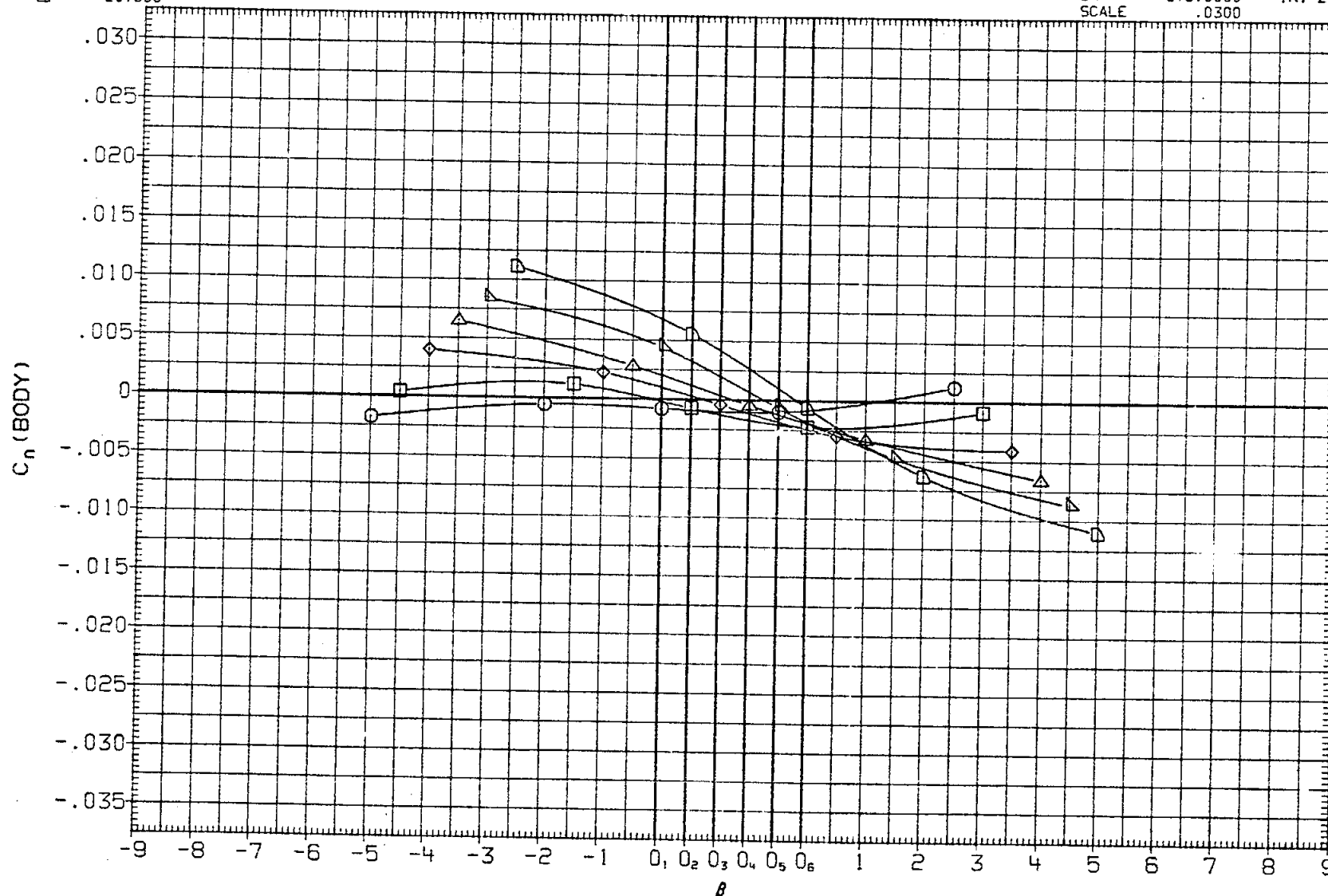


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

SYMBOL

SYMBOL		ALPHA		PARAMETRIC VALUES		DATASET		BETA		DATASET		BETA		SREF		2690.0000		SO.FT.	
		1.000	MACH	3.000	ELEVON	1.000	SE7913	-5.000		SE7914	-2.000			LREF	474.8003			IN.	
		4.000	AILRON	.000	BDFLAP	-7.170	SE7915	.000		SE7916	2.000			BREF	936.6803			IN.	
		8.000					SE7917	5.000						XMRR	1076.6803			IN.	XO
		12.000												YMRR	.0000			IN.	YO
		16.000												ZMRR	375.0000			IN.	ZO
		20.000												SCALE	.0333				

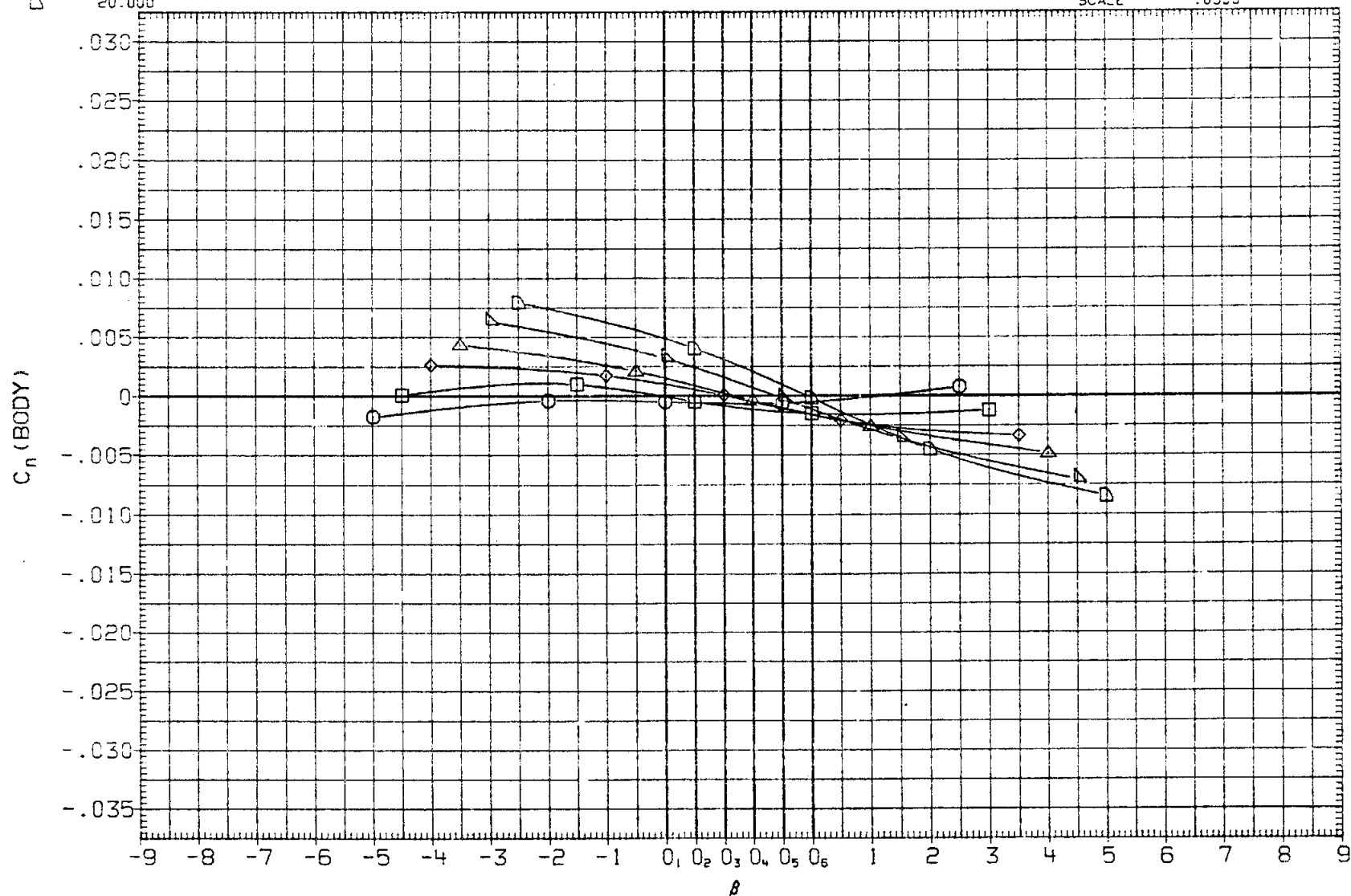


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

(SE7913) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	ELEVON	BDFLAP	DATASET	BETA	DATASET	BETA	REFERENCE INFORMATION
□	.000		3.500			SE7913	-5.000	SE7914	-2.000	SREF 2690.0000 SQ.FT.
△	4.000	AILRON	.000		-7.170	SE7915	.000	SE7916	2.000	LREF 474.8000 IN.
◇	8.000									BREF 936.6800 IN.
○	12.000									XMRP 1076.6800 IN. XO
◇	16.000									YMRP .0000 IN. YO
○	20.000									ZMRP 375.0000 IN. ZO
										SCALE .0300

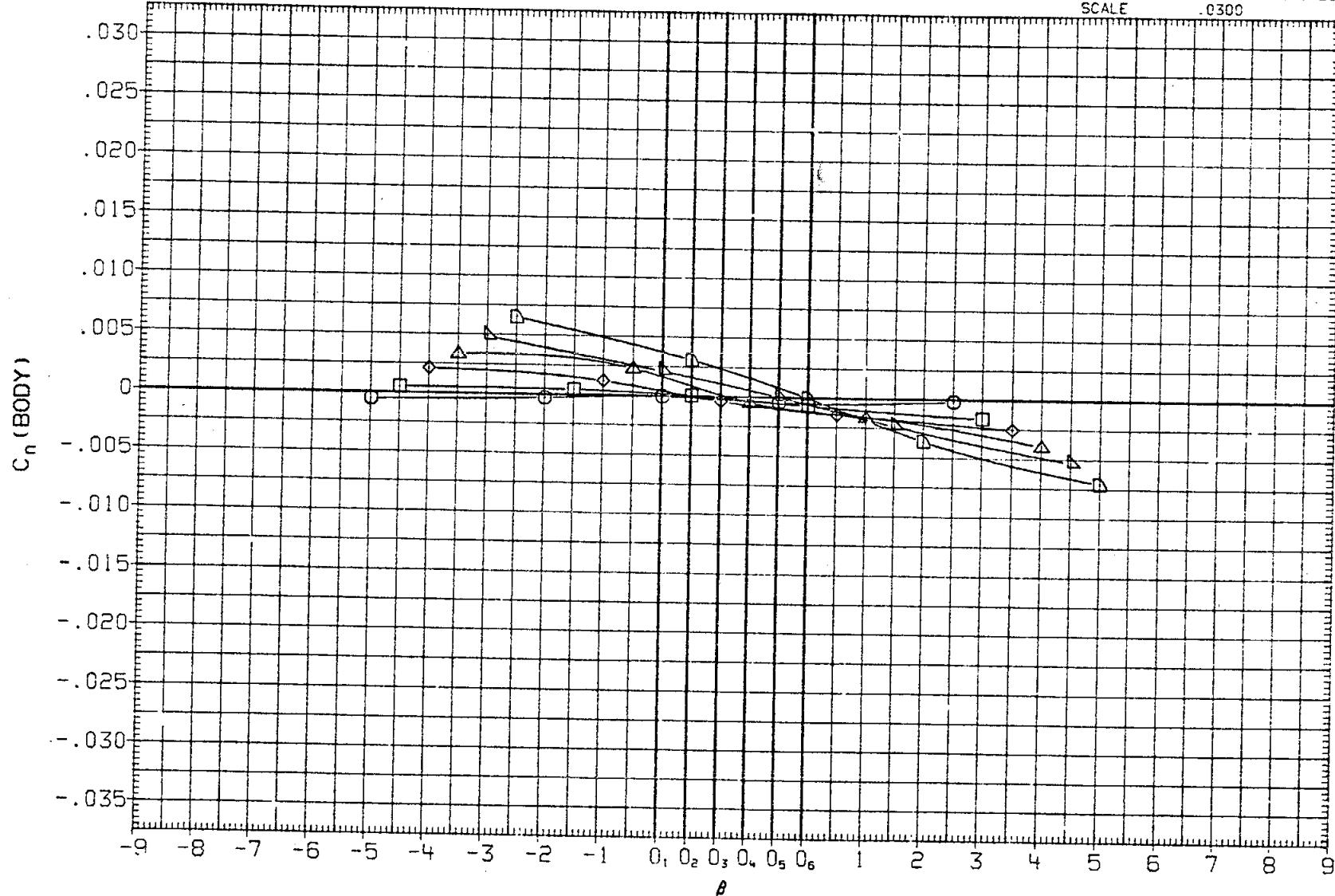


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA



PAGE 106



(SE7913) ARC 11-97-87-094 OA161 ORBITER

REFERENCE INFORMATION										
SYMBOL	ALPHA		PARAMETRIC VALUES		DATASET	BETA	DATASET	BETA	SREF	SQ.FT.
○	.000	MACH	.700	ELEVON	.000	SE7913	-5.000	SE7914	-2.000	2690.0000
□	4.000	AILRON	.000	BDFLAP	-7.170	SE7915	.000	SE7916	2.000	474.8000
◇	8.000					SE7917	5.000			935.6800
△	12.000									1076.6800
▽	16.000									.0000
◻	20.000									375.0000
										SCALE
										.0300

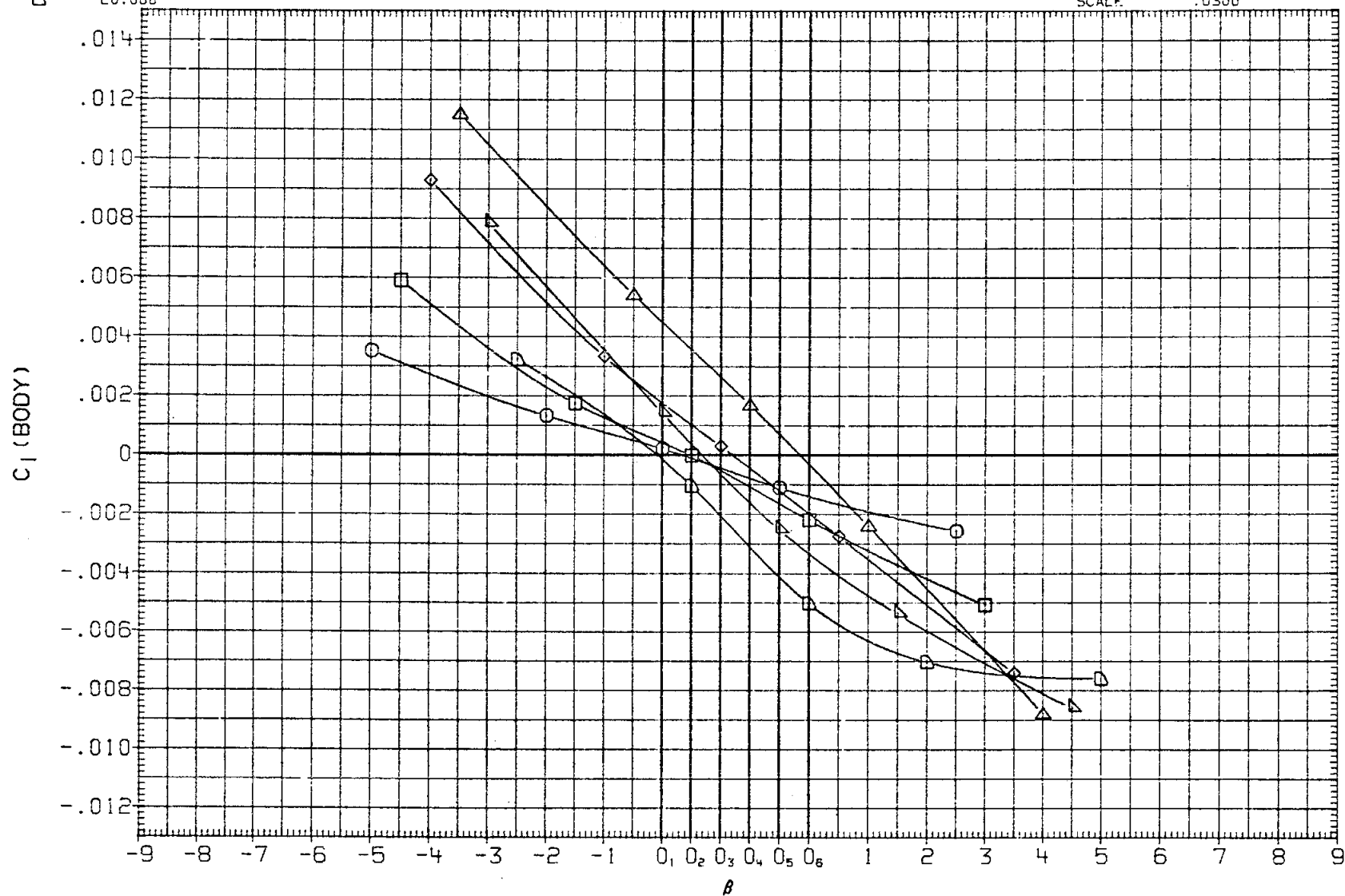


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

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IN.
IN.
IN. XO
IN. YO
IN. ZO

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FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

(SE7913) ARC 11-97-87-094 OA161 ORBITER

SYMBOL										REFERENCE INFORMATION		
ALPHA	PARAMETRIC VALUES				DATASET	BETA	DATASET	BETA				
○	.000	MACH	.850	ELEVON	.000	SE7913	-5.000	SE7914	-2.000	SREF	2690.0000	SQ. FT.
◇	4.000	AILRON	.000	BDFLAP	-7.170	SE7915	.000	SE7916	2.000	LREF	474.8000	IN.
□	8.000					SE7917	5.000			BREF	936.6800	IN.
△	12.000									XMPP	1075.6800	IN. XO
▽	16.000									YMPP	.0000	IN. YO
◇	20.000									ZMPP	375.0000	IN. ZO
										SCALE	.0300	

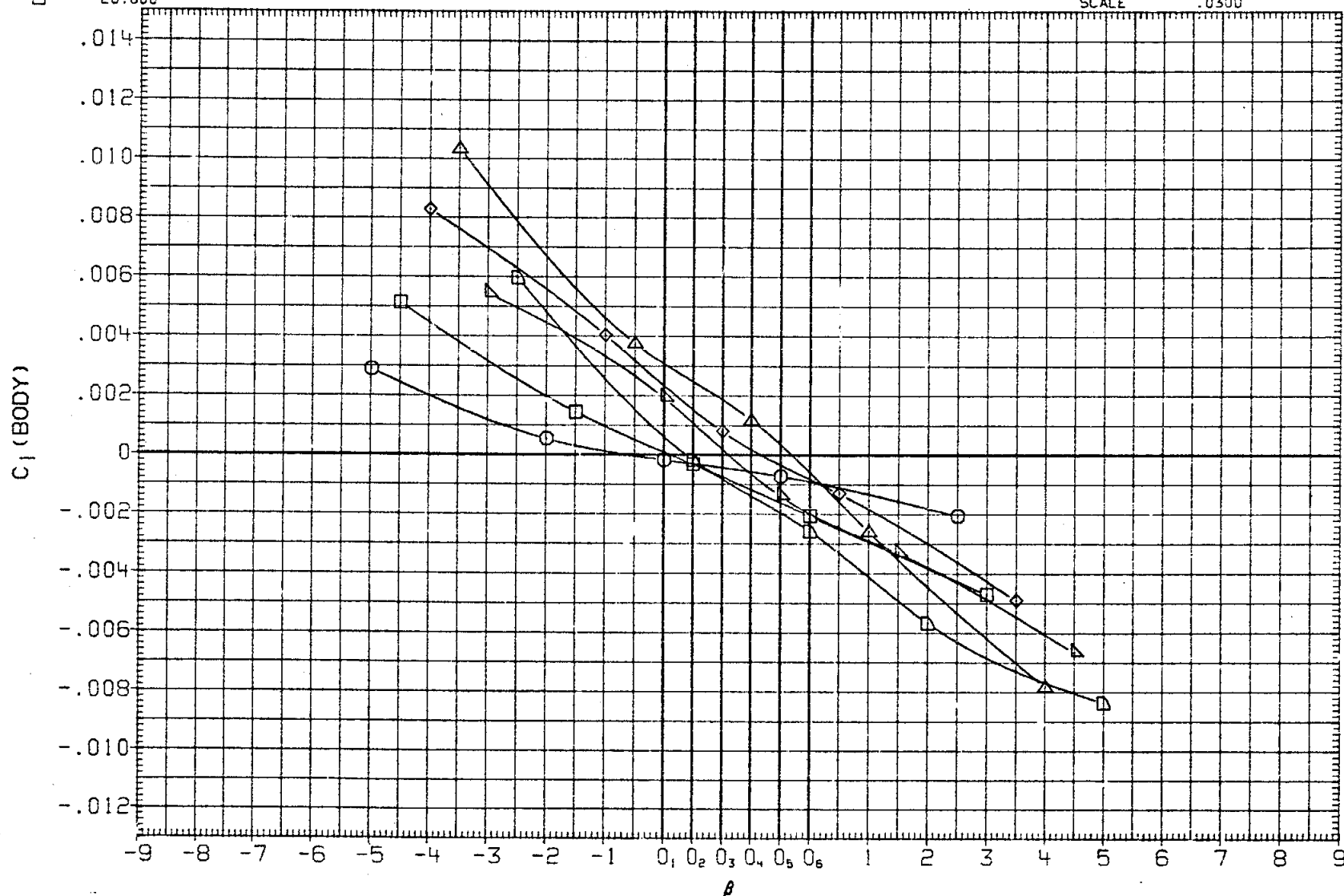


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA



(SE7913) ARC 11-97-87-094 OA161 ORBITER

SYMBOL  
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ALPHA  
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 12.000  
 16.000  
 20.000

MACH  
 AILRON

PARAMETRIC VALUES

.950 ELEVON .000  
 .000 BDFLAP -7.170

DATASET

SE7913 -5.000  
 SE7915 .000  
 SE7917 5.000

BETA

DATASET

BETA  
 SE7914 -2.000  
 SE7916 2.000

REFERENCE INFORMATION

SREF 2690.0000 SQ. FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300



FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

SREF

2690.0000

50 FT.

LREF

474.8000

IN.

BREF

936.6800

IN.

XMRP

1076.6800

IN. XO

YMRP

.0000

IN. YO

ZMRP

375.0000

IN. ZO

SCALE

.0300

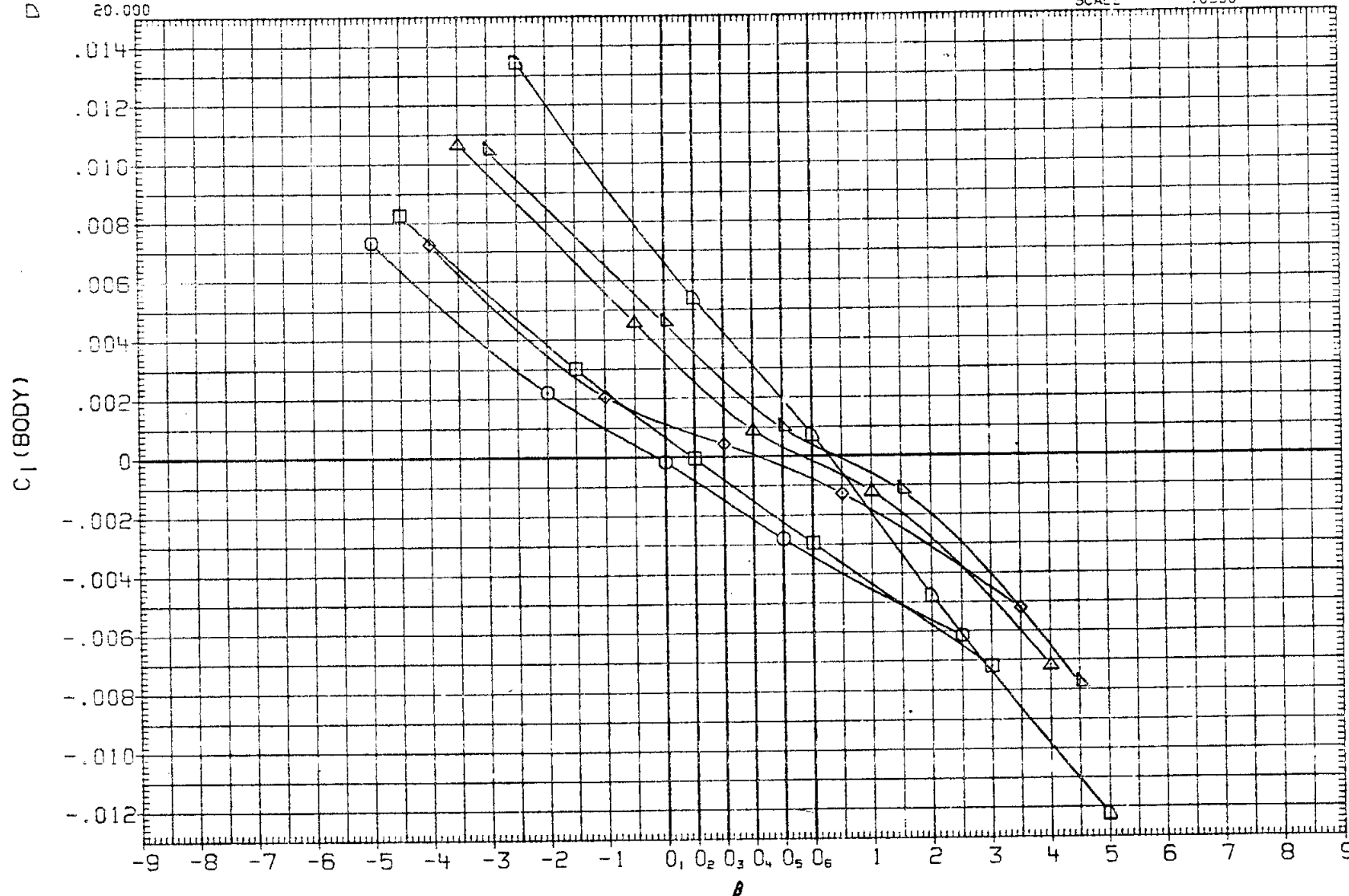


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

(SE7913) ARC 11-97-87-094 OA161 ORBITER

37634 SATURN ORBITER										REFERENCE INFORMATION		
SYMBOL	ALPHA	PARAMETRIC VALUES				DATASET	BETA	DATASET	BETA			
○	.000	MACH	1.050	ELEVON	.000	SE7913	-5.000	SE7314	-2.000	SREF	2690.0000	SQ.FT.
□	4.000	ATLON	.000	BDFLAP	-7.170	SE7915	.000	SE7316	2.000	LREF	474.8000	IN.
◇	8.000									BREF	936.6800	IN.
△	12.000					SE7917	5.000			XMRP	1076.6800	IN. XO
▽	16.000									YMRP	.0000	IN. YO
▽	20.000									ZMRP	375.0000	IN. ZO
										SCALE	.0300	

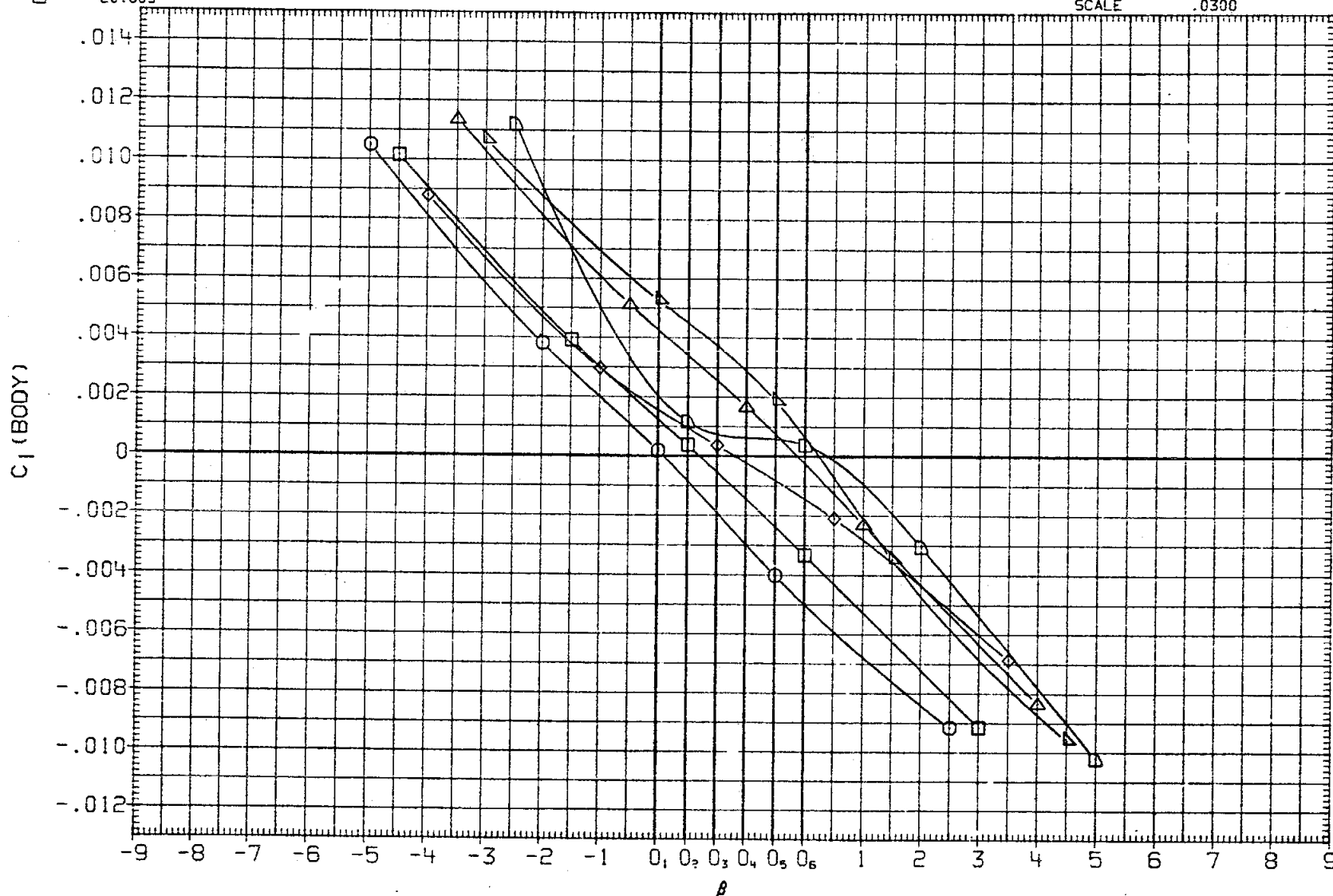


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

0  
4  
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20

0.000  
4.000  
8.000  
12.000  
16.000  
20.000

MACH  
ATLON

1.100  
1.000

ELEVON  
BDFLAP

0.000  
-7.170

SE7913  
SE7915  
SE7917

-5.000  
0.000  
5.000

SE7914  
SE7916

-2.000  
2.000

SREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. XO  
YMRP 0.0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE 0.3300

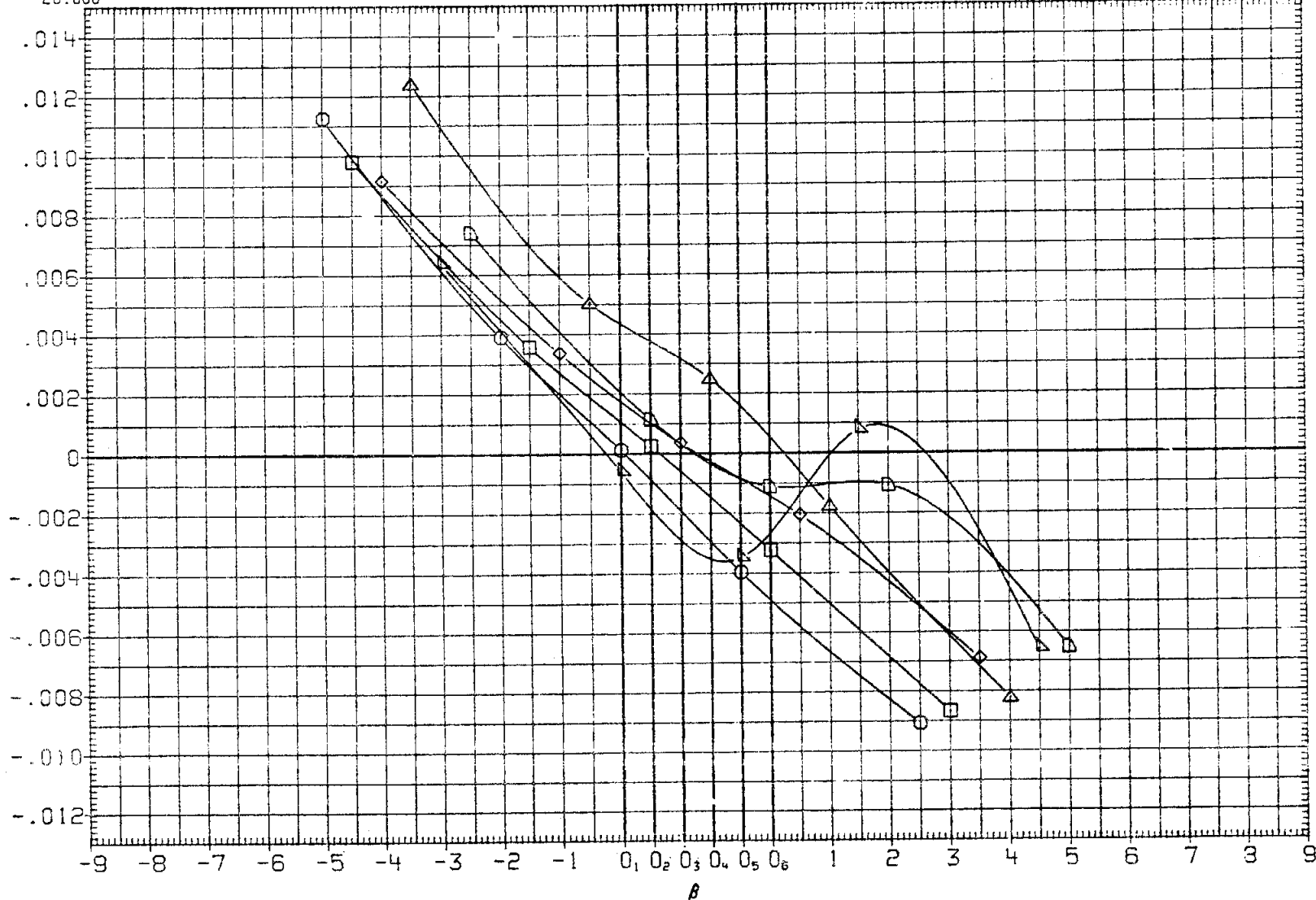
 $C_l$  (BODY)

FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA



(SE7913) ARC 11-97-87-094 0A161 ORBITER

SYMBOL  
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MACH  
 AILRON

PARAMETRIC VALUES  
 1.150  
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 ELEVON  
 BDFLAP

.000  
 -7.170

DATASET  
 SE7913  
 SE7915  
 SE7917

BETA  
 -5.000  
 .000  
 5.000

DATASET  
 SE7914  
 SE7916

BETA  
 -2.000  
 2.000

REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

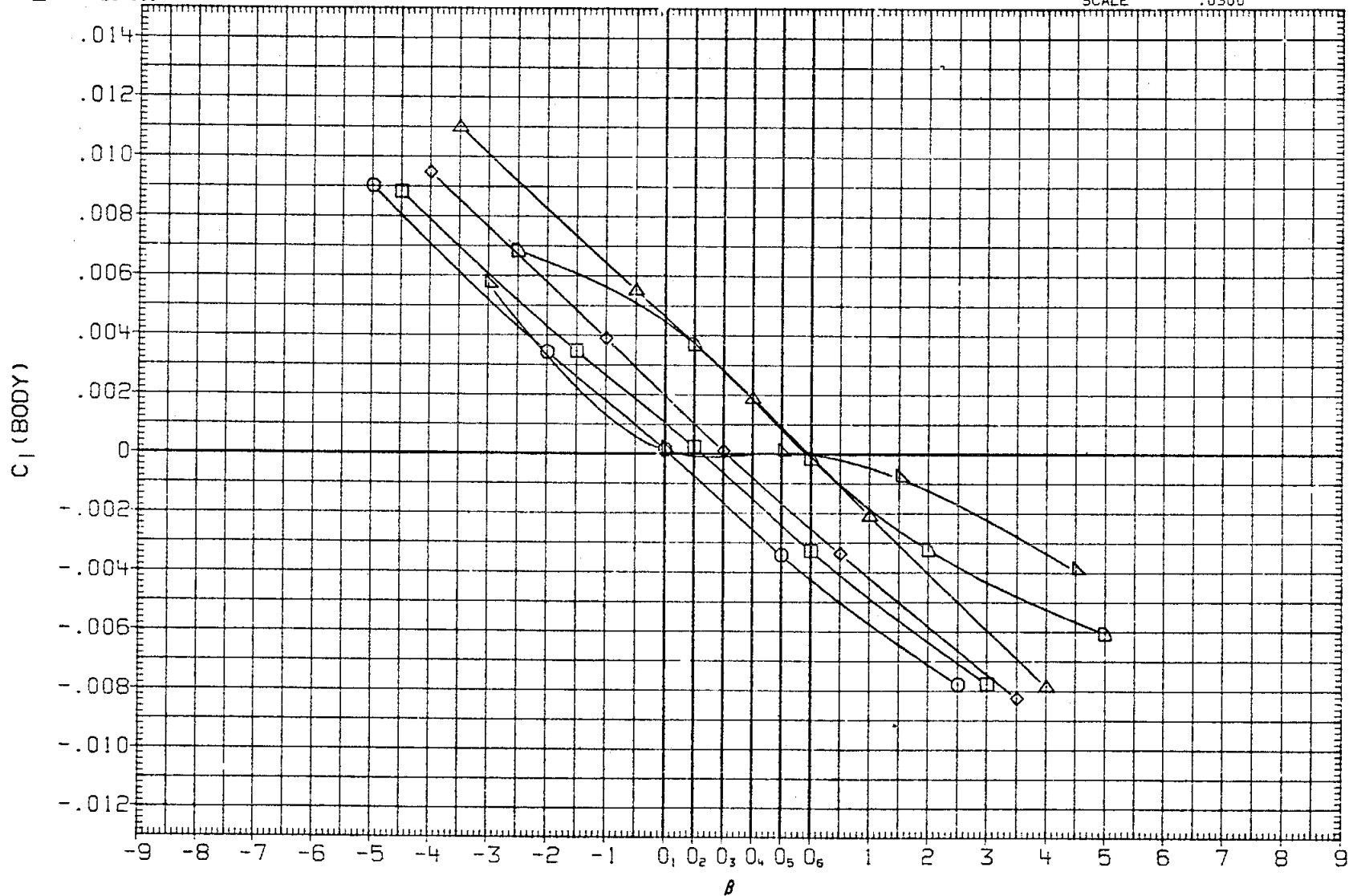


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

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 AILRON

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ELEVON  
 BDFLAP

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 -7.170

SE7913  
 SE7915  
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 5.000

SE7914  
 SE7916

-2.000  
 2.000

SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .8000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

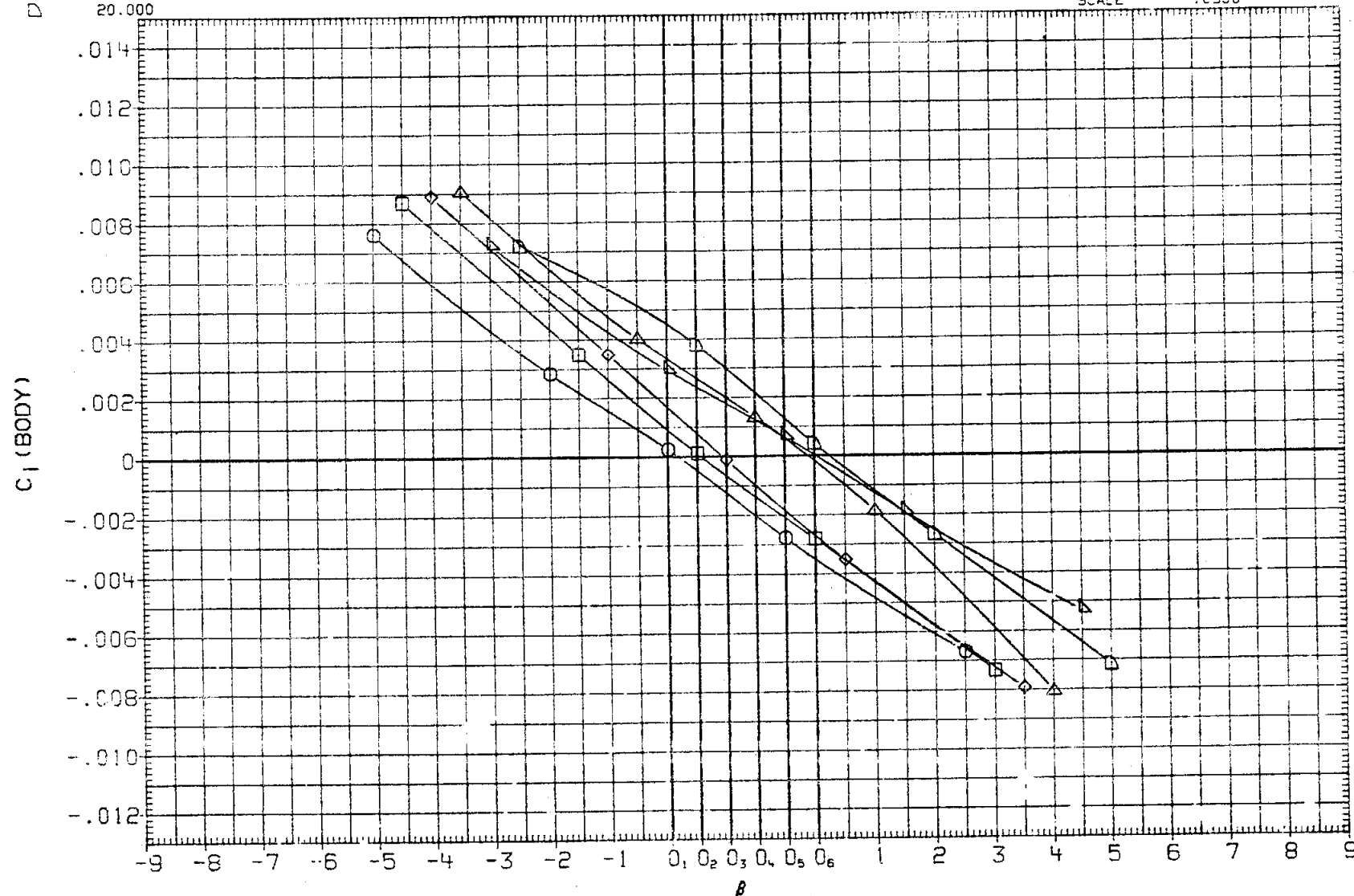


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

(SE7913) ARC 11-97-87-094 OA161 ORBITER

SYMBOL

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12.000  
16.000  
20.000

MACH  
AILRON

PARAMETRIC VALUES

1.300 ELEVON  
.000 BDFLAP

.000  
-7.170

DATASET

SE7913  
SE7915  
SE7917

BETA

-5.000  
.000  
5.000

DATASET

SE79 4  
SE79 6

BETA

-2.000  
2.000

REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. XO  
YMRP .3000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300



FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

SRF	2690.0000	IN. Y
LREF	474.0000	IN. X
SRF	936.6800	IN. Y
XMRP	1076.6800	IN. X
YMRP	1000.0000	IN. Y
ZMRP	375.0000	IN. Z
SCALE	0.000	

010044

1.000	MACH	1.400	ELEVON	.000
4.000	AILRON	.000	BDFLAP	-7.170
8.000				
12.000				
16.000				
20.000				

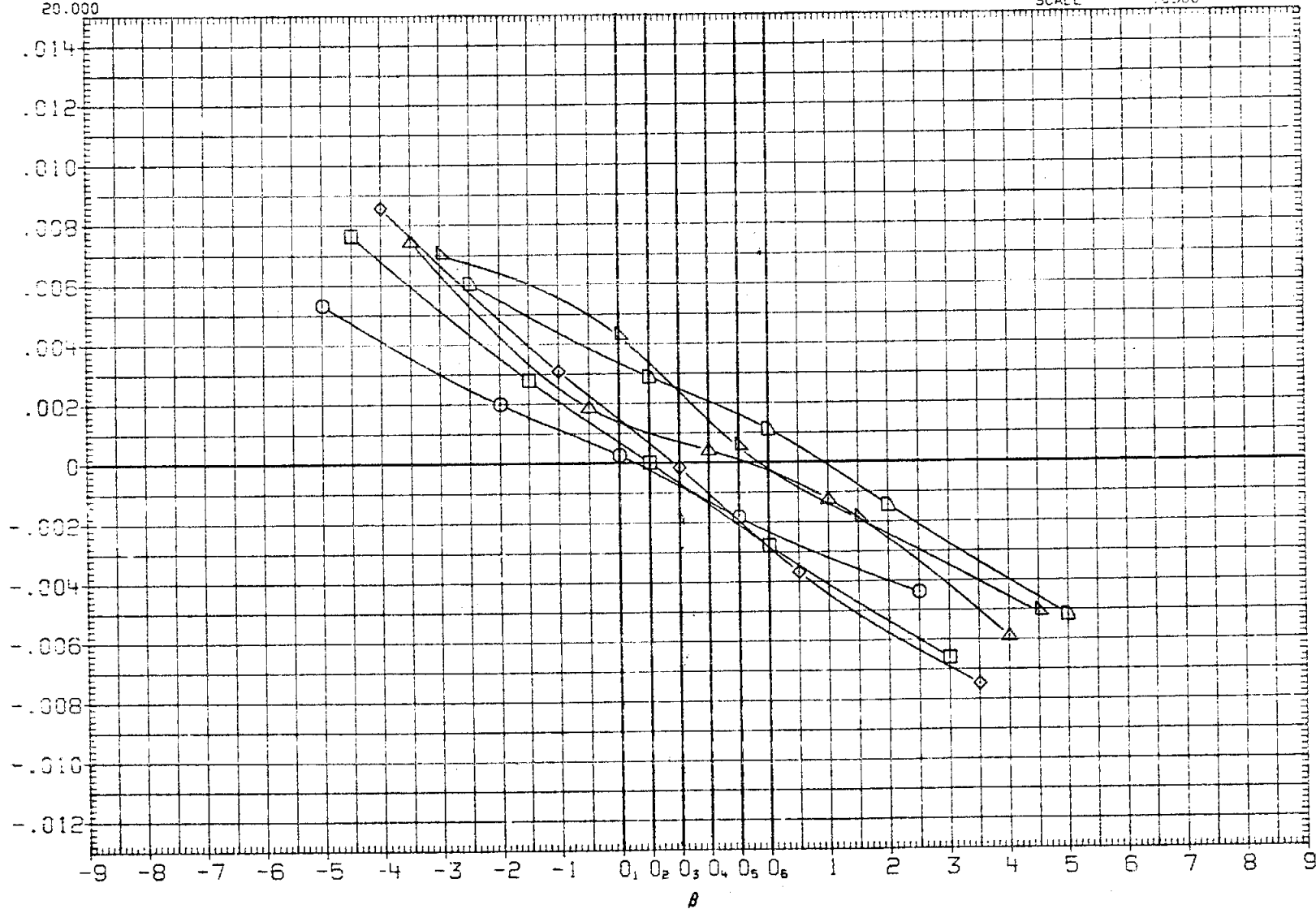
C<sub>L</sub> (BODY)

FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

(SE7913) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	ALPHA	MACH	PARAMETRIC	VALUES	ELEVON	BDFLAP	SE7913	BETA	SE7914	BETA	SE7916	BETA	REFERENCE INFORMATION
○	.000												SREF 2690.0000 SQ.FT.
□	4.000												LREF 474.8000 IN.
◇	8.000												BREF 935.6800 IN.
△	12.000												XMRF 1076.6800 IN. XO
▽	16.000												YMRF .0000 IN. YO
○	20.000												ZMRF 375.0000 IN. ZO
													SCALE .0300

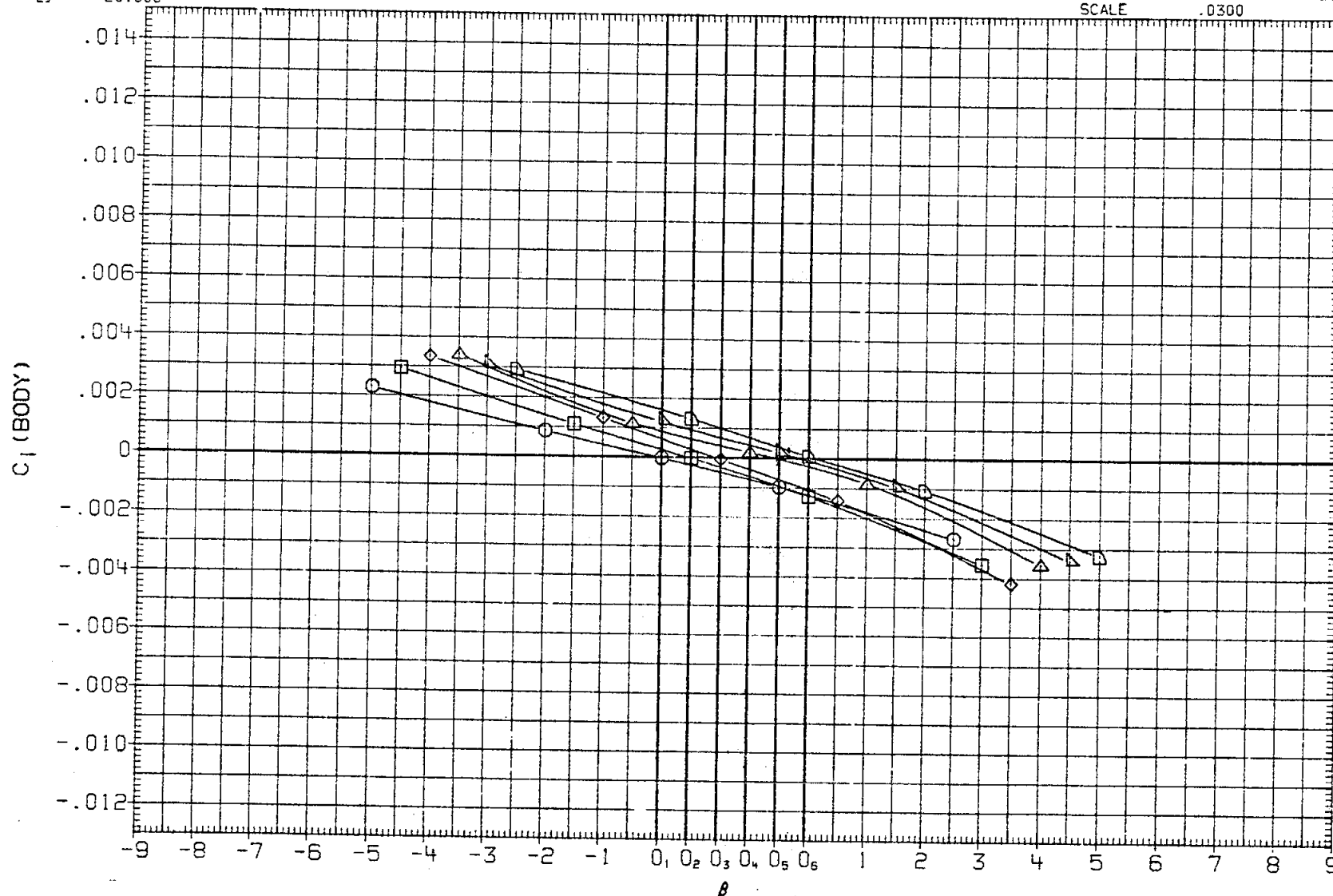


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

SREF	2690.0000	SC, FT.
LREF	479.8000	IN.
BREF	935.6800	IN.
XMRF	1076.6800	IN. XO
YMRF	.0000	IN. YO
ZMRF	375.0000	IN. ZO
SCALE	.0300	

0  
 4  
 8  
 12  
 16  
 20

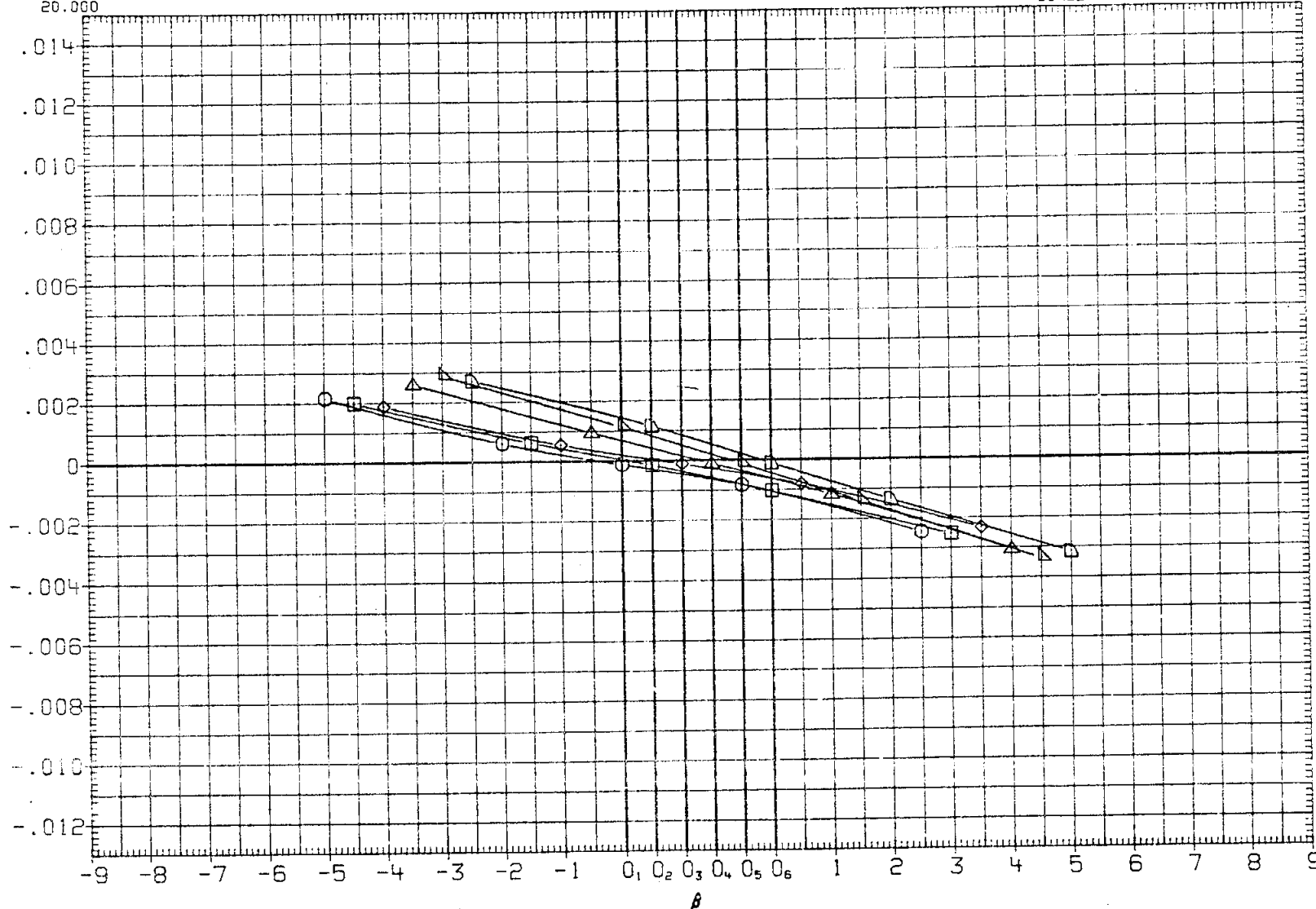
 $C_L$  (BODY)

FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

(SE7913) ARC 11-97-87-094 0A161 ORBITER

SYMBOL  
 ○  
 □  
 ◇  
 △  
 ▽  
 4.000  
 8.000  
 12.000  
 16.000  
 20.000

PARAMETRIC VALUES  
 MACH 2.000  
 AILRON .000  
 ELEVON .000  
 BDFLAP -7.170

DATASET BETA  
 SE7913 -5.000  
 SE7915 .000  
 SE7917 5.000

DATASET BETA  
 SE7914 -2.000  
 SE7916 2.000

REFERENCE INFORMATION  
 SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

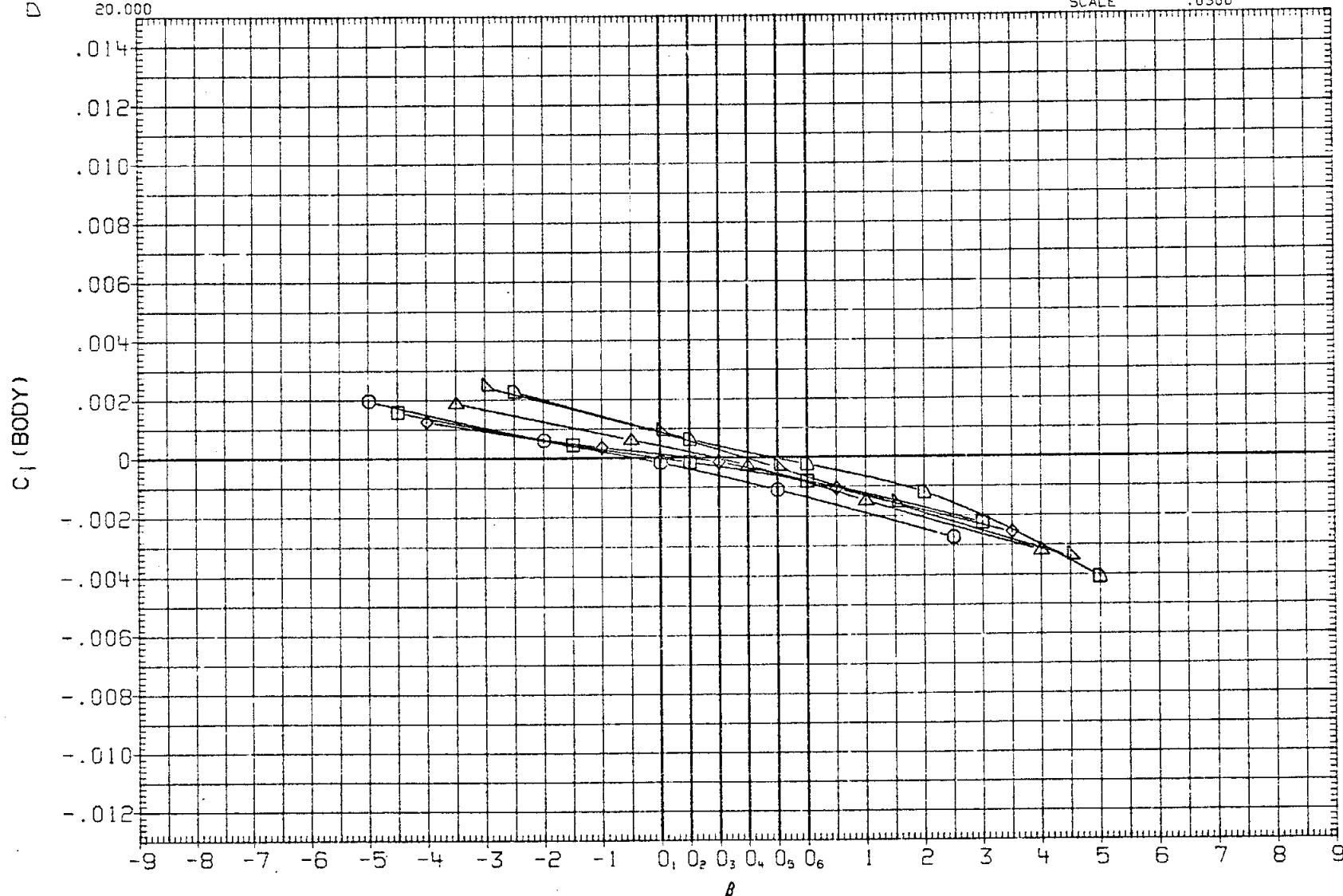


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

SYMBOL	ALPHA	PARAMETRIC VALUES				DATASET	BETA	DATASET	BETA	REFERENCE INFORMATION	
		MACH	ELEVON	BDFLAP						SREF	SG.FT.
○	.000	2.250	.000	.000	-5.000	SE7913	-5.000	SE7914	-2.000	2690.0000	50.00
□	4.000	.000	.000	-7.170	.000	SE7915	.000	SE7916	2.000	975.6600	IN. X0
◇	8.000					SE7917	5.000			1075.6800	IN. Y0
△	12.000									.0000	IN. Z0
▽	16.000									375.0000	
◻	20.000									SCALE	.0000

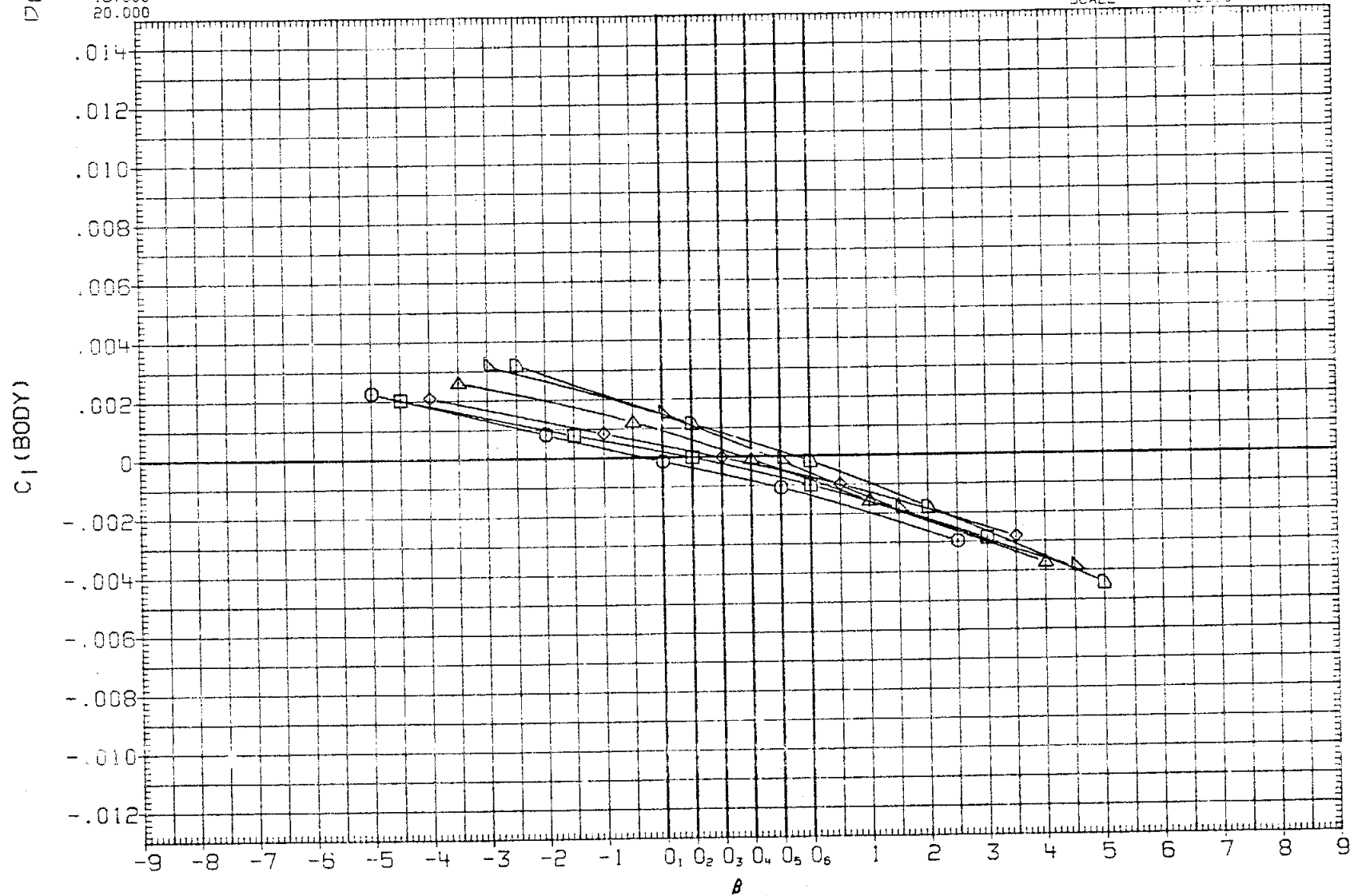


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA



(SE7913) ARC 11-97-87-094 0A161 ORBITER

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	ELEVON	BDFLAP	DATASET	BETA	DATASET	BETA	REFERENCE INFORMATION
○	.000	2.500		.000	SE7913	-5.000	SE7914	-2.000	SREF	2690.0000 SQ. FT.
□	4.000	.000		.000	SE7915	.000	SE7916	2.000	LREF	474.8000 IN.
◇	8.000				SE7917	5.000			BREF	936.6800 IN.
△	12.000								XMRP	1076.6800 IN. XO
▽	16.000								YMRP	.0000 IN. YO
◇	20.000								ZMRP	375.0000 IN. ZO
									SCALE	.0300



FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

○  
 □  
 ◇  
 △  
 ○  
 □  
 ◇  
 △

0.000  
 4.000  
 8.000  
 12.000  
 16.000  
 20.000

MACH  
 AILRON

3.000  
 .000

ELEVON  
 BOFLAP

.000  
 -7.170

SE7913  
 SE7915  
 SE7917

-5.000  
 .000  
 5.000

SE7913  
 SE7918

-8.000  
 2.000

SREF 2690.0000 SQ. FT.  
 LREF 474.8000 IN.  
 BREF 935.6000 IN.  
 XMRP 1076.6000 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE .6300

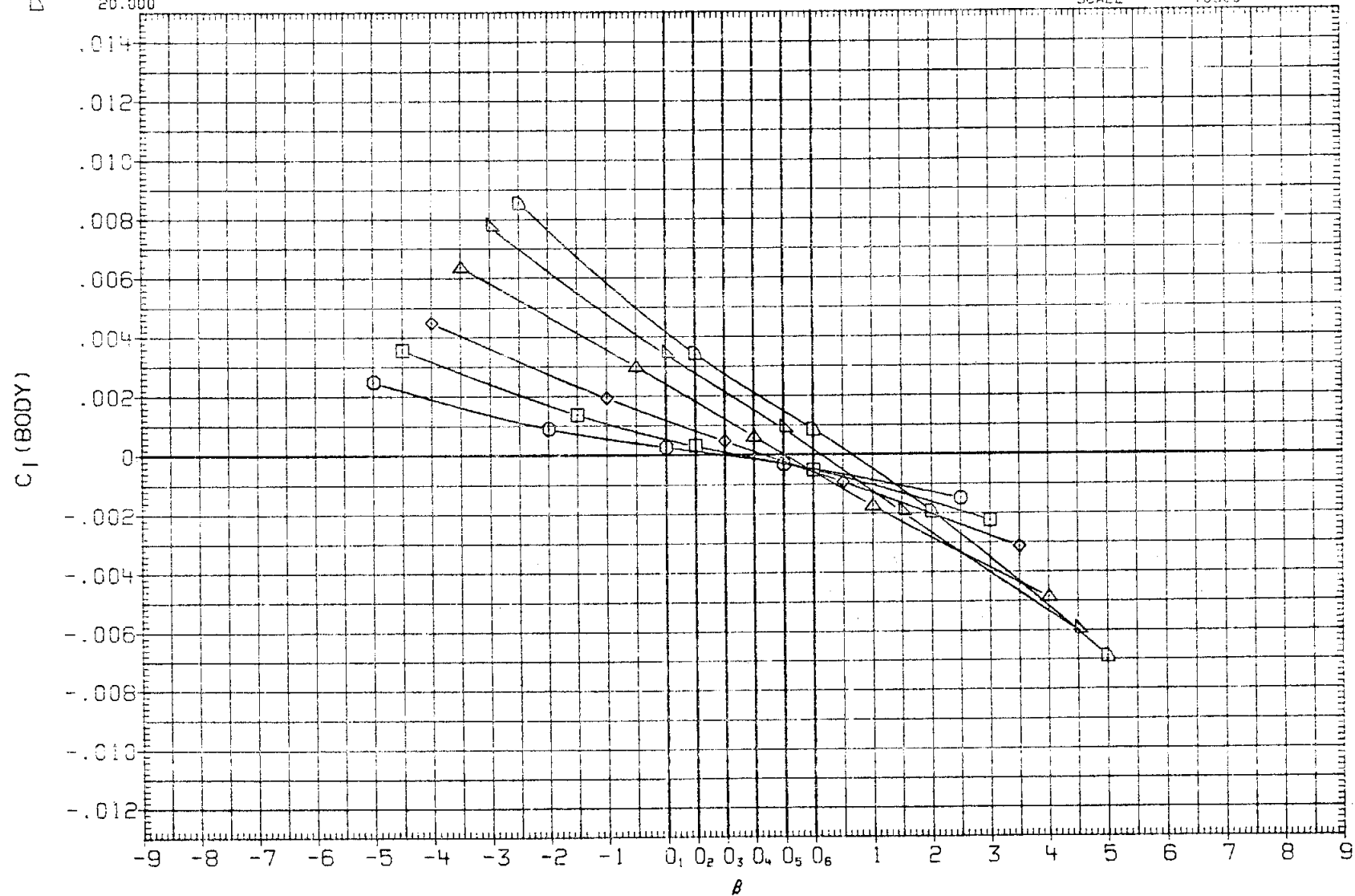


FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

(SE7913) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	ALPHA	PARAMETRIC VALUES			DATASET	BETA	DATASET	BETA	
○	.000	MACH	3.500	ELEVON	.000	SE7913	-5.000	SE7914	-2.000
◇	4.000	AILRON	.000	BDFLAP	-7.170	SE7915	.000	SE7915	2.000
□	8.000								
△	12.000								
▽	16.000								
○	20.000								

REFERENCE INFORMATION		
SREF	2690.0000	SQ. FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	



FIG. 7 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH BETA

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	DOFLAP	REFERENCE INFORMATION		
REF 013	○	ARC 11-97-87-094 CA161 ORBITER	-5.000	.000	.000	-7.170	SREF	2590.0000	90.571
REF 014	□	ARC 11-97-87-094 CA161 ORBITER	-2.000	.000	.000	-7.170	LREF	474.8000	IN.
REF 015	◇	ARC 11-97-87-094 CA161 ORBITER	.000	.000	.000	-7.170	SREF	935.6800	IN.
REF 016	△	ARC 11-97-87-094 CA161 ORBITER	2.000	.000	.000	-7.170	XMRP	1076.6600	IN. 20
REF 017	▽	ARC 11-97-87-094 CA161 ORBITER	5.000	.000	.000	-7.170	YMRP	1000.0000	IN. 10
							ZMRP	375.0000	IN. 20
							SCALE	.0500	

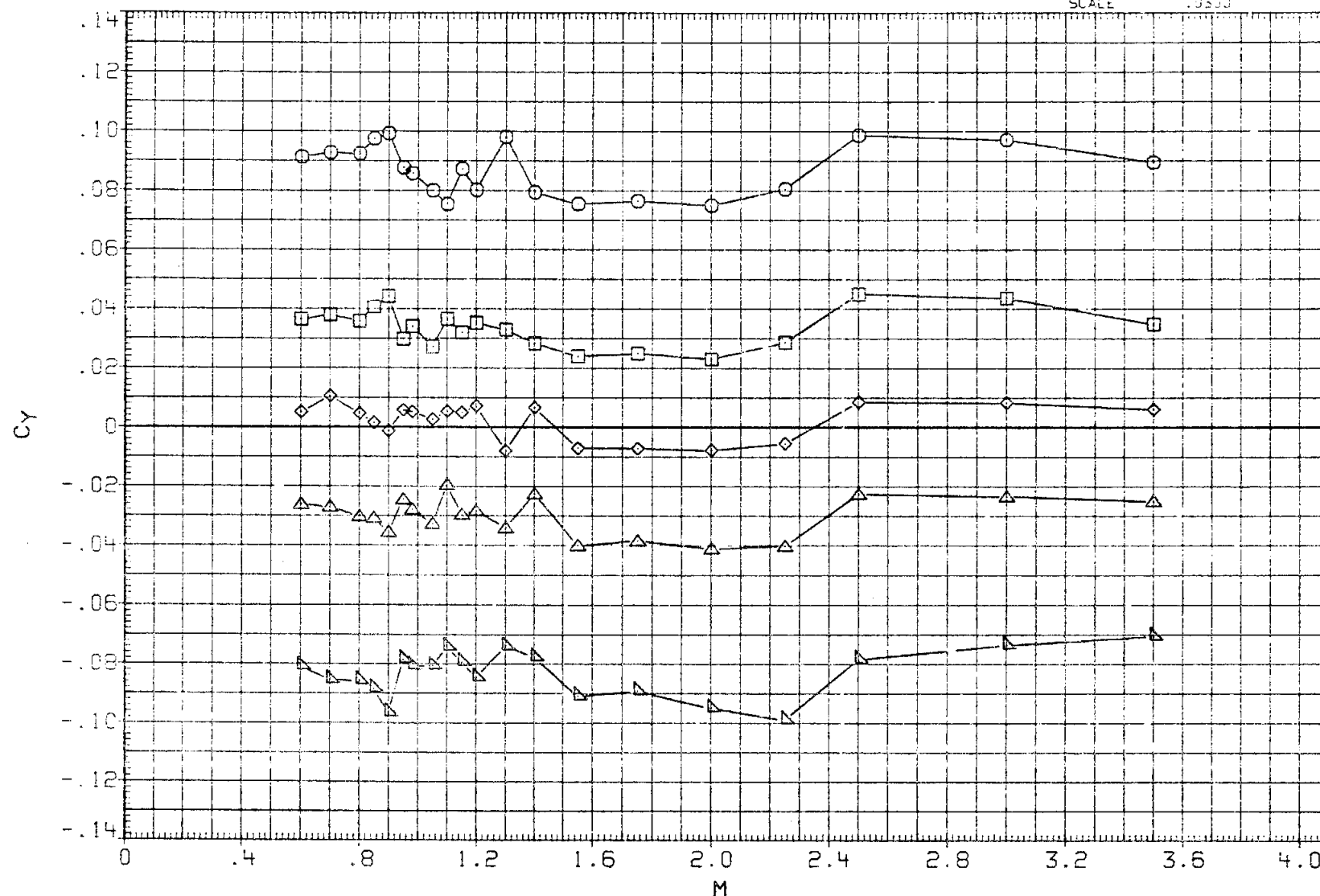


FIG. 8 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH MACH NUMBER

(A) ALPHA = .00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
RE7913	○	ARC 11-97-87-094 OA161 ORBITER	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
RE7914	□	ARC 11-97-87-094 OA161 ORBITER	-2.000	.000	.000	-7.170	LREF	474.8000	IN.
RE7915	◇	ARC 11-97-87-094 OA161 ORBITER	.000	.000	.000	-7.170	BREF	936.6800	IN.
RE7916	△	ARC 11-97-87-094 OA161 ORBITER	2.000	.000	.000	-7.170	XMRF	1076.6800	IN. XO
RE7917	▽	ARC 11-97-87-094 OA161 ORBITER	5.000	.000	.000	-7.170	YMRF	.0000	IN. YO
							ZMRF	375.0000	IN. ZO
							SCALE	.0300	

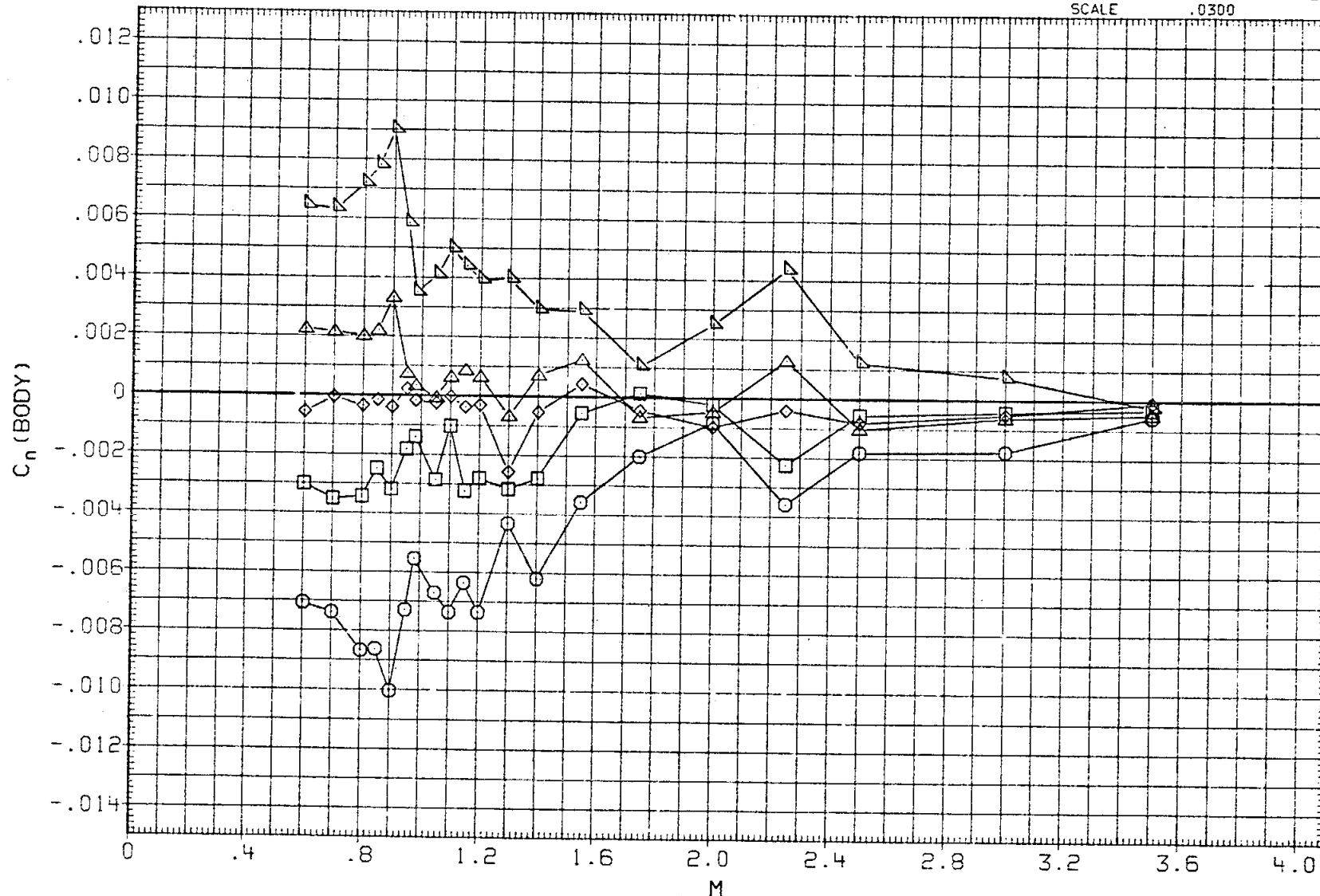


FIG. 8 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH MACH NUMBER

(A) ALPHA = .00

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	CLON	REFERENCE INFORMATION		
RET912	ARC 11-97-87-094 OA161 ORBITER	-5.000	.000	.000	-7.170	SREF	2690.0000	SO. FT.
RET914	ARC 11-97-87-094 OA161 ORBITER	-2.000	.000	.000	-7.170	LPREF	474.8000	IN.
RET915	ARC 11-97-87-094 OA161 ORBITER	.000	.000	.000	-7.170	GRF	936.6800	IN.
RET916	ARC 11-97-87-094 OA161 ORBITER	2.000	.000	.000	-7.170	XMRF	1076.6800	IN. X0
RET917	ARC 11-97-87-094 OA161 ORBITER	5.000	.000	.000	-7.170	YMRF	.0000	IN. Y0
						ZMRF	375.0000	IN. Z0
						SCALE	.0300	

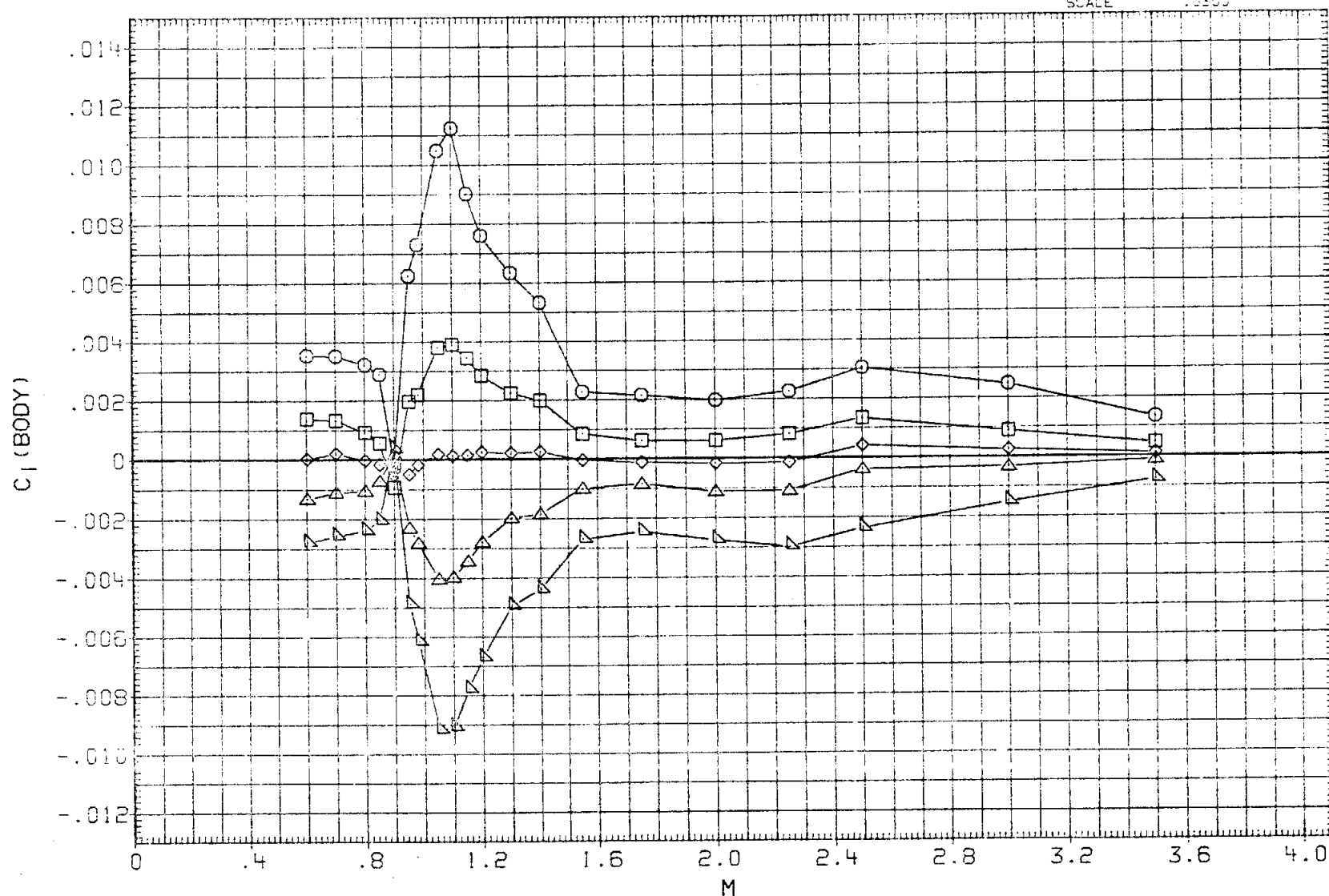


FIG. 8 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH MACH NUMBER

(A) ALPHA = .00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
RE7913	○	ARC 11-97-87-094 OA161 ORBITER	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
RE7914	□	ARC 11-97-87-094 OA161 ORBITER	-2.000	.000	.000	-7.170	LREF	474.0000	IN.
RE7915	◇	ARC 11-97-87-094 OA161 ORBITER	.000	.000	.000	-7.170	BREF	936.6800	IN.
RE7916	△	ARC 11-97-87-094 OA161 ORBITER	2.000	.000	.000	-7.170	XMPP	1076.6800	IN. XO
RE7917	▽	ARC 11-97-87-094 OA161 ORBITER	5.000	.000	.000	-7.170	YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

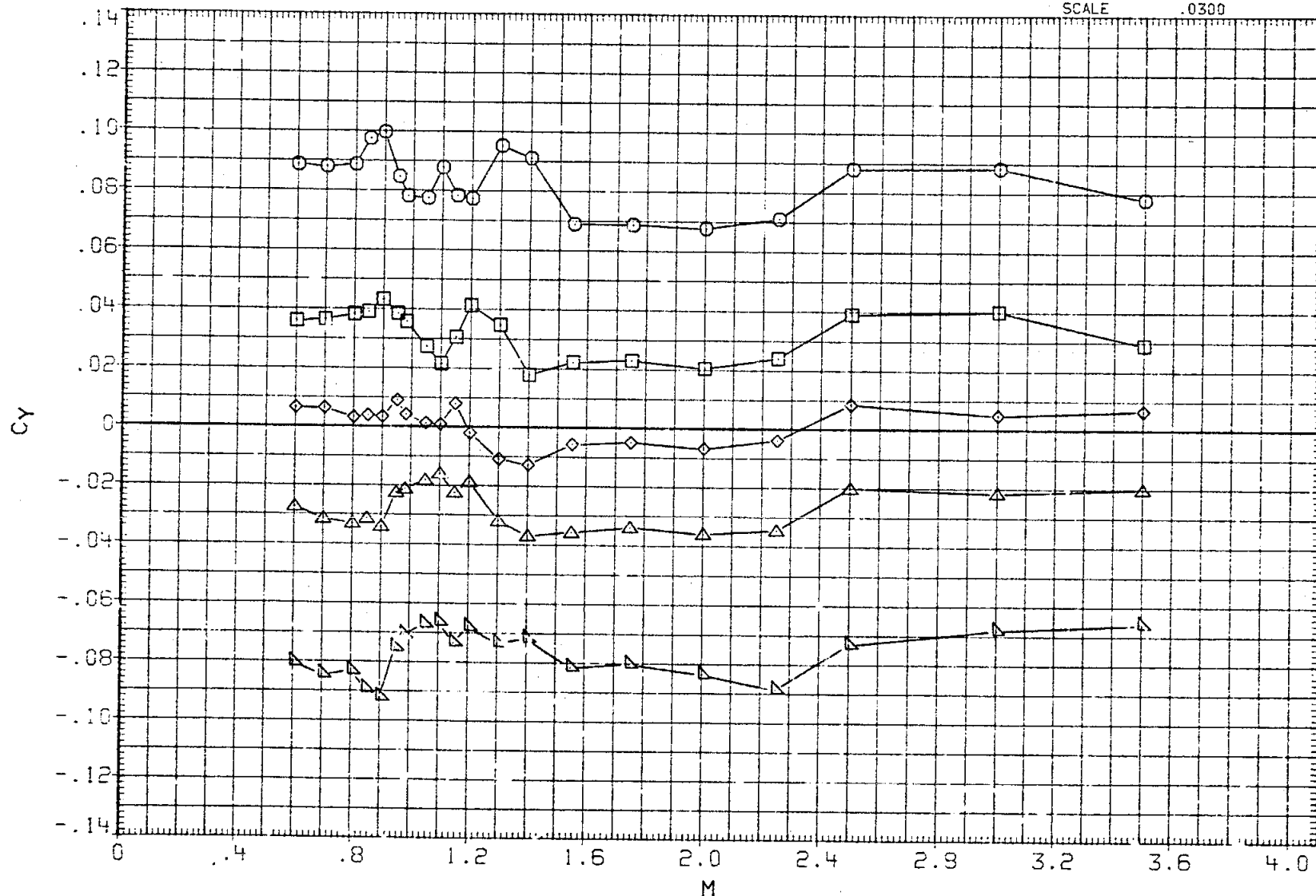


FIG. 8 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH MACH NUMBER

(B) ALPHA = 4.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
RE79:3	○	ARC 11-97-87-094 OA161 ORBITER	-5.000	.000	.000	-7.170	SREF	2890.0000	50.F11
RE79:4	□	ARC 11-97-87-094 OA161 ORBITER	-2.000	.000	.000	-7.170	LREF	474.6000	IN.
RE79:5	◇	ARC 11-97-87-094 OA161 ORBITER	.000	.000	.000	-7.170	BREF	935.6000	IN.
RE79:6	△	ARC 11-97-87-094 OA161 ORBITER	2.000	.000	.000	-7.170	XMPP	1075.6000	IN. XO
RE79:7	▽	ARC 11-97-87-094 OA161 ORBITER	5.000	.000	.000	-7.170	YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0300	

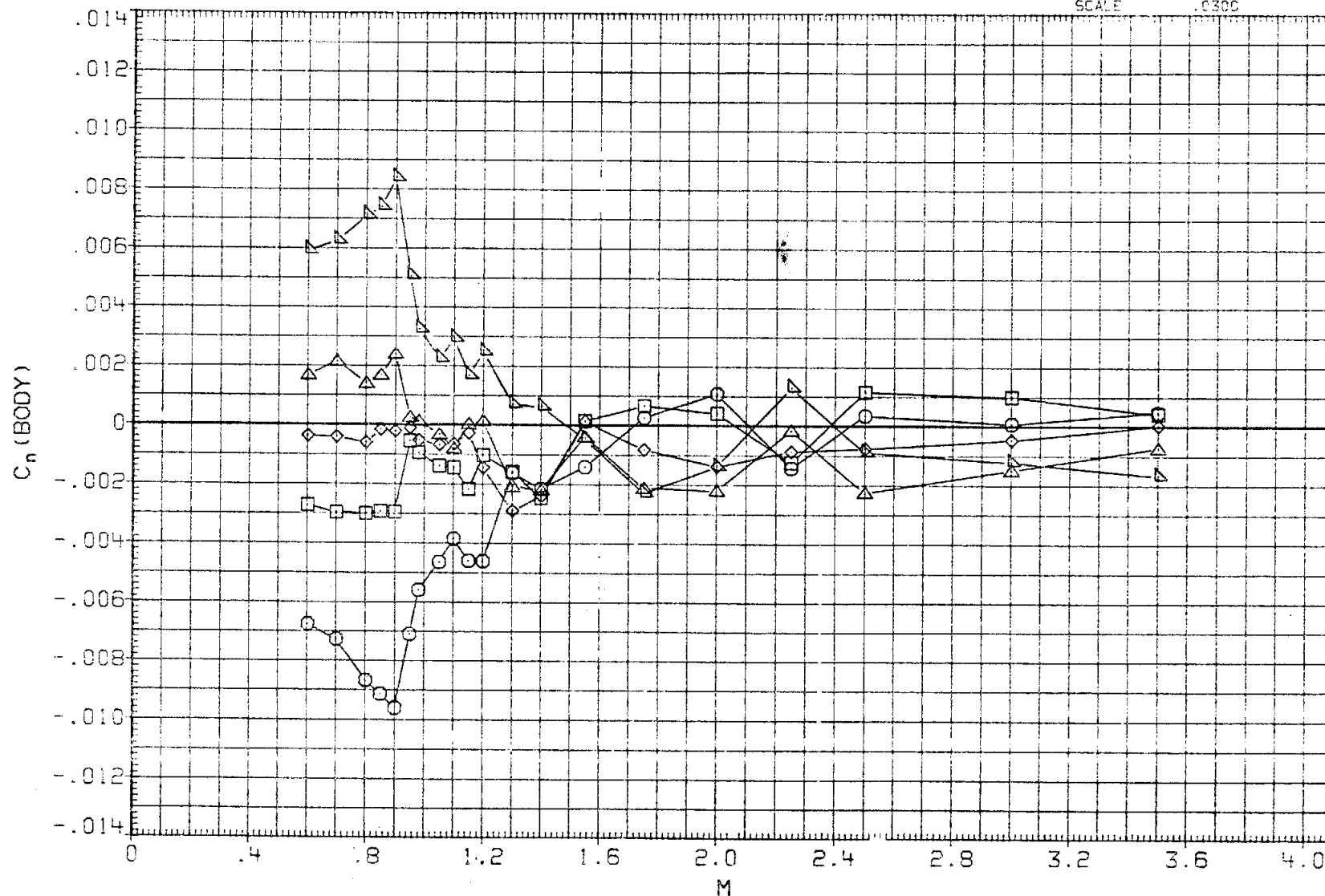


FIG. 8 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH MACH NUMBER

(B) ALPHA = 4.00



DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
RE7913	○	ARC 11-97-87-094 0A161 ORBITER	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
RE7914	□	ARC 11-97-87-094 0A161 ORBITER	-2.000	.000	.000	-7.170	LREF	474.8000	IN.
RE7915	◇	ARC 11-97-87-094 0A161 ORBITER	.000	.000	.000	-7.170	BREF	936.6800	IN.
RE7916	△	ARC 11-97-87-094 0A161 ORBITER	2.000	.000	.000	-7.170	XMRP	1076.6800	IN. X0
RE7917	▽	ARC 11-97-87-094 0A161 ORBITER	5.000	.000	.000	-7.170	YMRP	.0000	IN. Y0
							ZMRP	375.0000	IN. Z0
							SCALE	.0300	

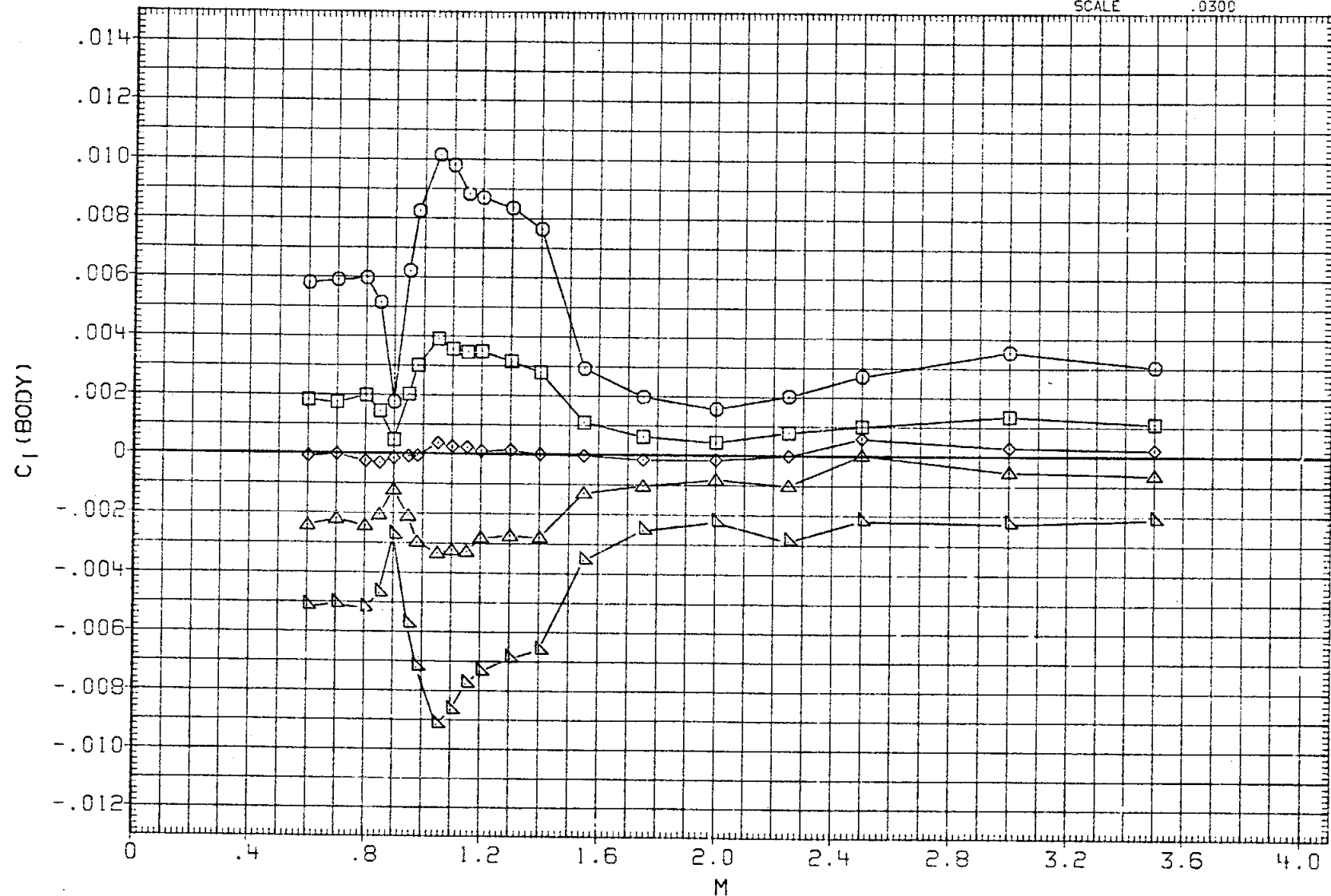


FIG. 8 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH MACH NUMBER

(B) ALPHA = 4.00

DATA SET SYMBOL

CONFIGURATION

SEYA

ELEVON

AILRON

PDFLAP

REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION
ARC 11-97-87-094 OA161 ORBITER	
ARC 11-97-87-094 OA161 ORBITER	
ARC 11-97-87-094 OA161 ORBITER	
ARC 11-97-87-094 OA161 ORBITER	
ARC 11-97-87-094 OA161 ORBITER	
ARC 11-97-87-094 OA161 ORBITER	

SEYA	ELEVON	AILRON	PDFLAP
-5.000	.000	.000	-7.170
-3.000	.000	.000	-7.170
.000	.000	.000	-7.170
2.000	.000	.000	-7.170
5.000	.000	.000	-7.170

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	475.8000	IN.
BREF	235.6800	IN.
XMPP	1075.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

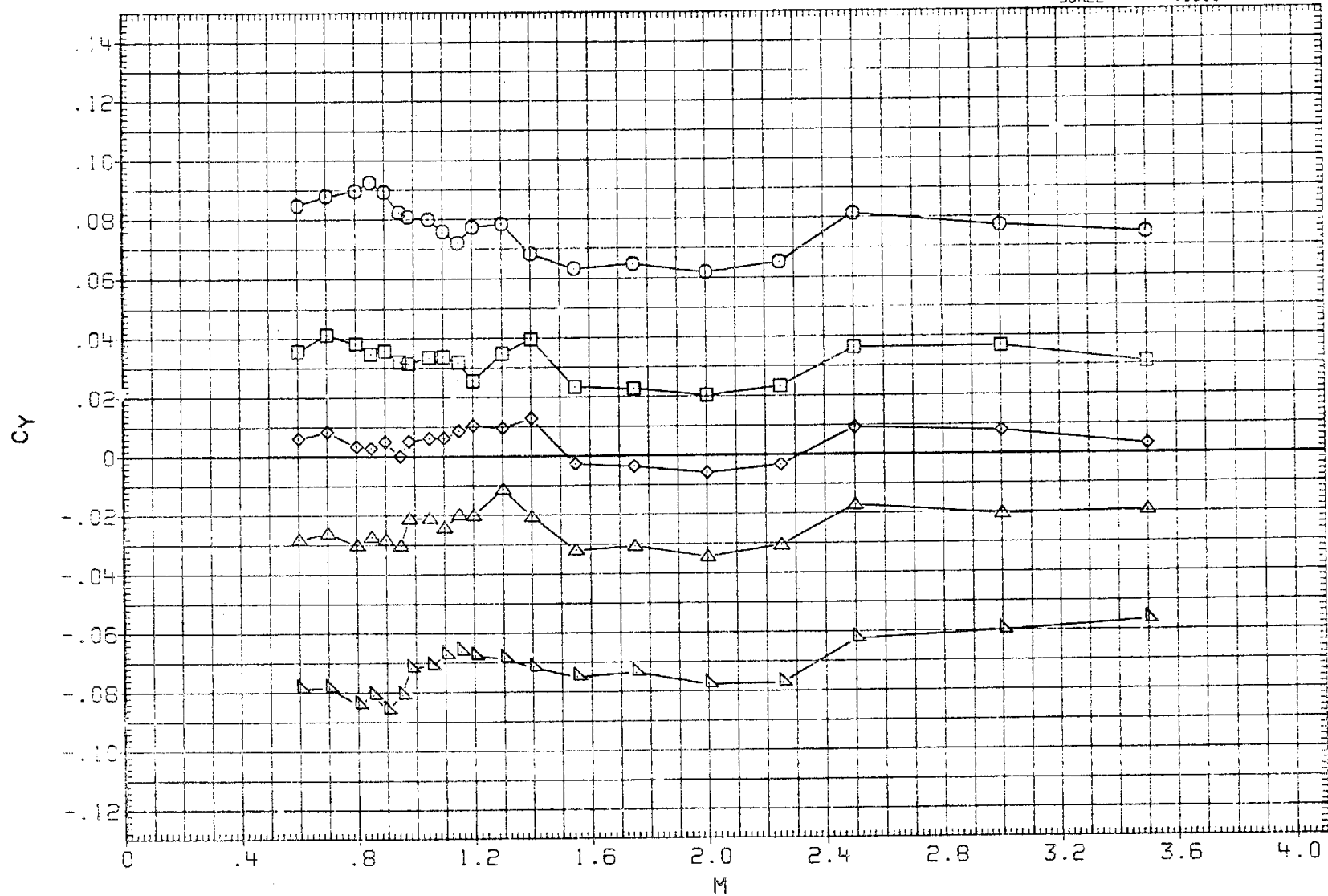


FIG. 8 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH MACH NUMBER

TOTAL ALPHA = 8.00

PAGE 132

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
RET913	○	ARC 11-97-87-094 OA161 ORBITER	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
RET914	□	ARC 11-97-87-094 OA161 ORBITER	-2.000	.000	.000	-7.170	LREF	474.8000	IN.
RET915	◇	ARC 11-97-87-094 OA161 ORBITER	.000	.000	.000	-7.170	BREF	936.6800	IN.
RET916	△	ARC 11-97-87-094 OA161 ORBITER	2.000	.000	.000	-7.170	XMRP	1076.6800	IN. XO
RET917	▽	ARC 11-97-87-094 OA161 ORBITER	5.000	.000	.000	-7.170	YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0500	

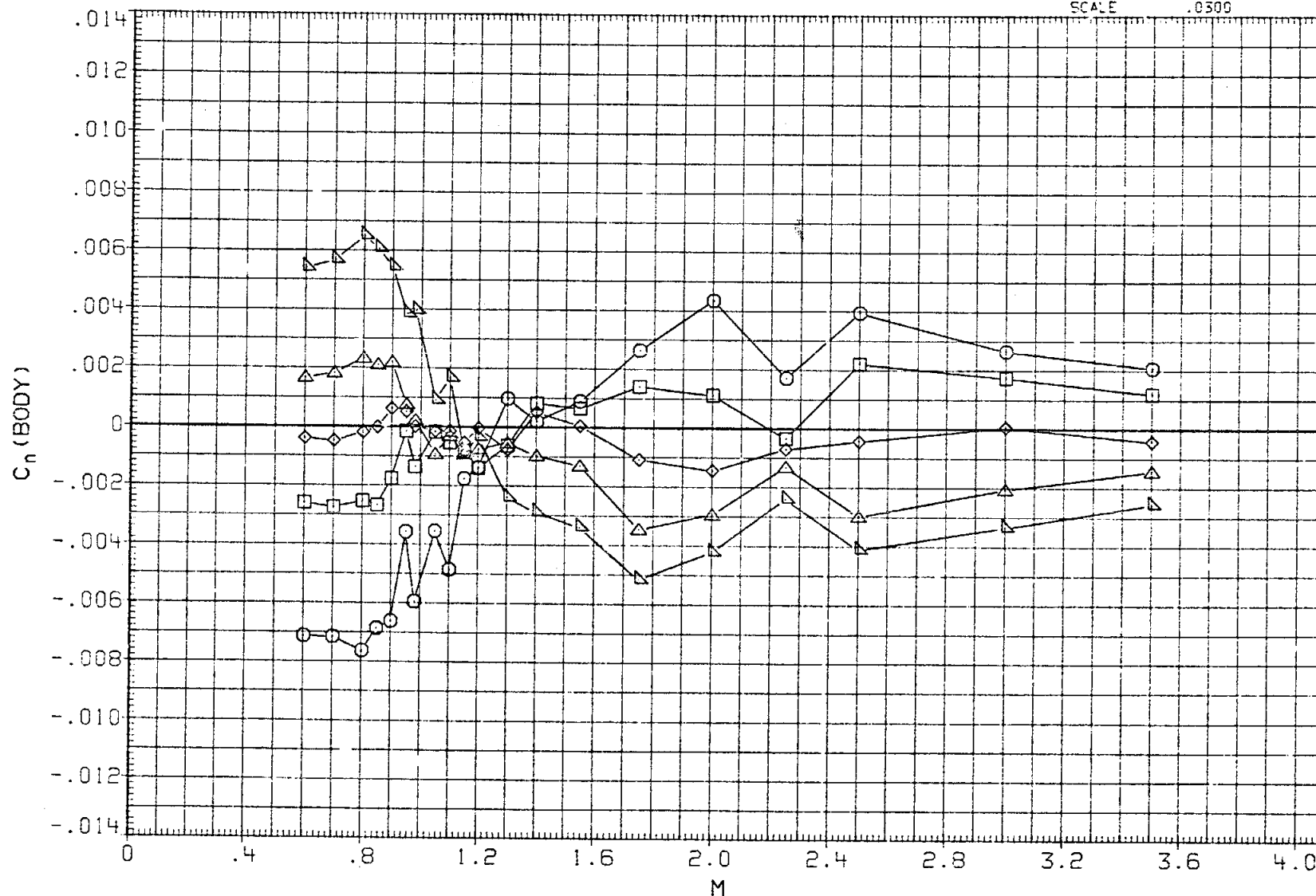


FIG. 8 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH MACH NUMBER

(C) ALPHA = 8.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILERON	SDFLAP	REFERENCE INFORMATION		
RE7913	○	ARC 11-97-87-094 OA161 ORBITER	-5.000	.000	.000	-7.170	WREF	2690.0000	50. FT.
RE7914	□	ARC 11-97-87-094 OA161 ORBITER	-2.000	.000	.000	-7.170	LREF	474.8000	IN.
RE7915	◇	ARC 11-97-87-094 OA161 ORBITER	.000	.000	.000	-7.170	BREF	936.6800	IN.
RE7916	△	ARC 11-97-87-094 OA161 ORBITER	2.000	.000	.000	-7.170	XMRP	1076.6800	IN. XO
RE7917	▽	ARC 11-97-87-094 OA161 ORBITER	5.000	.000	.000	-7.170	YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

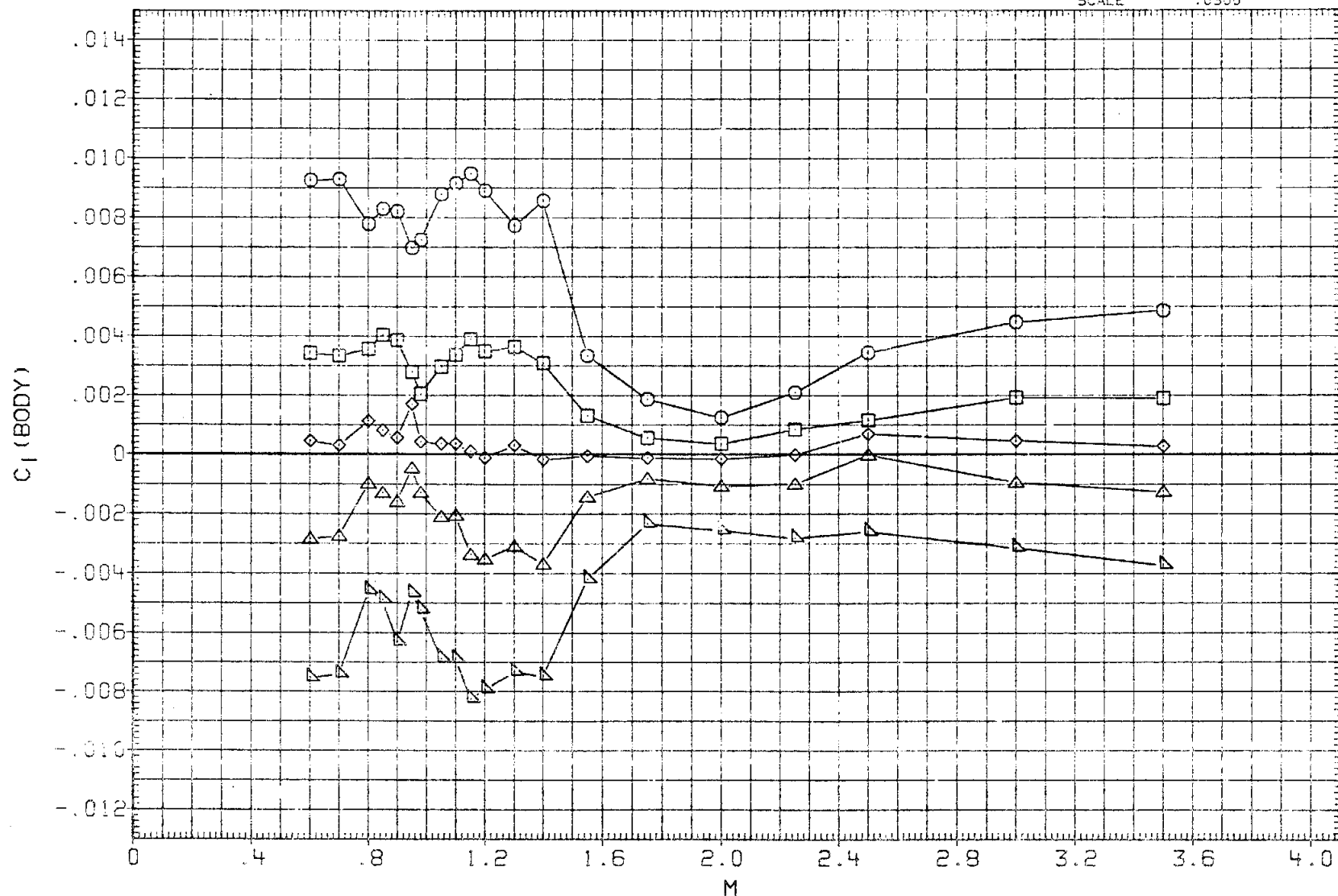


FIG. 8 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH MACH NUMBER

(C) ALPHA = 8.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
RE7913	○	ARC 11-97-87-094 OA161 ORBITER	-5.000	.000	.000	-7.170	SREF	2690.0000	50. FT.
RE7914	□	ARC 11-97-87-094 OA161 ORBITER	-2.000	.000	.000	-7.170	LREF	474.8000	IN.
RE7915	◇	ARC 11-97-87-094 OA161 ORBITER	.000	.000	.000	-7.170	BREF	936.6800	IN.
RE7916	△	ARC 11-97-87-094 OA161 ORBITER	2.000	.000	.000	-7.170	XMRP	1076.6900	IN. XO
RE7917	▽	ARC 11-97-87-094 OA161 ORBITER	5.000	.000	.000	-7.170	YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

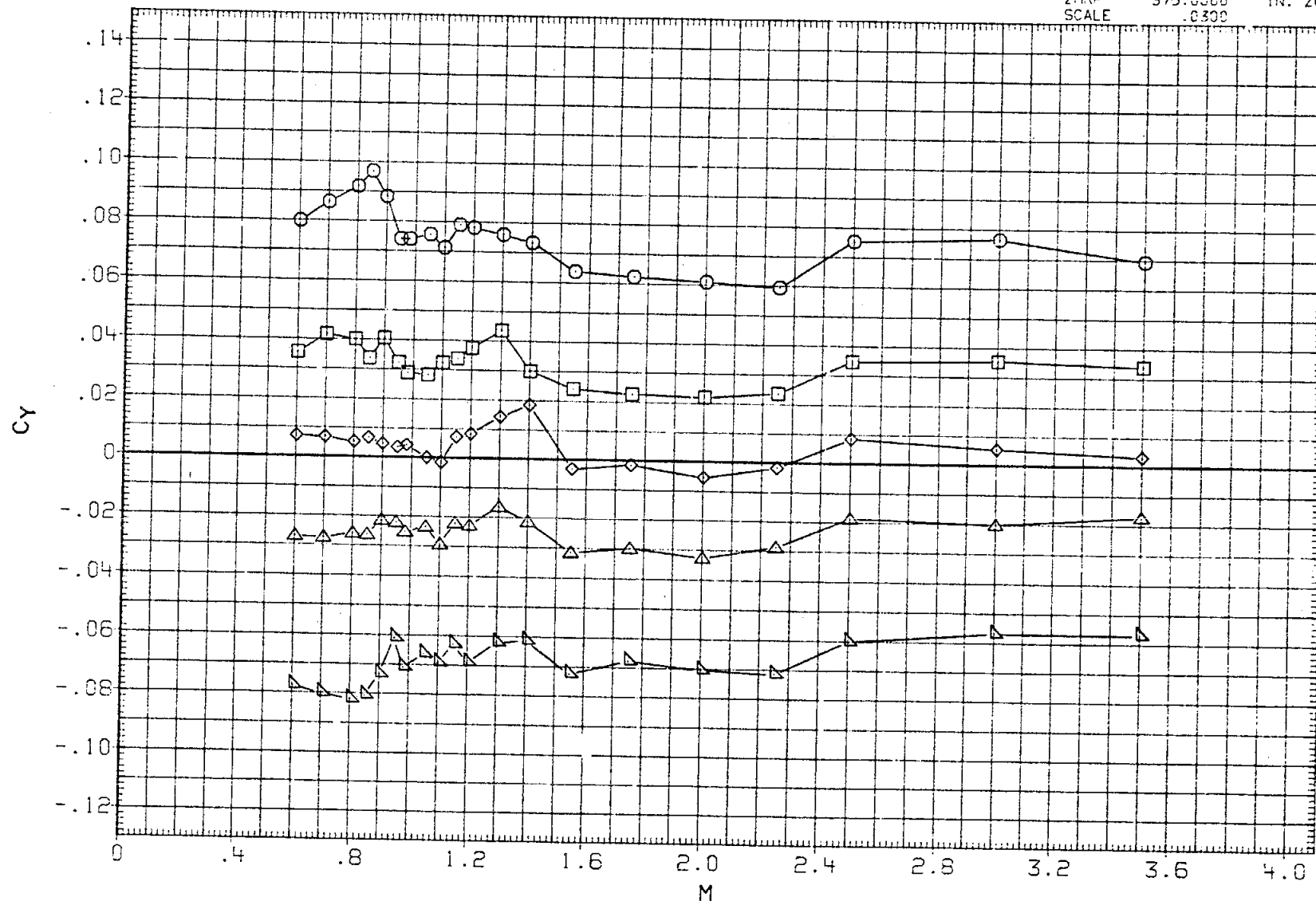


FIG. 8 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH MACH NUMBER

(D) ALPHA = 12.00

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILERON	SDFLAP	REFERENCE INFORMATION		
RET912	ARC 11-97-87-094 OA161 ORBITER	-5.000	.000	.000	-7.170	SRCT	2690.0000	50. FT.
RET914	ARC 11-97-87-094 OA161 ORBITER	-2.000	.000	.000	-7.170	CRCT	479.8000	IN.
RET915	ARC 11-97-87-094 OA161 ORBITER	.000	.000	.000	-7.170	SRCT	936.6000	IN.
RET916	ARC 11-97-87-094 OA161 ORBITER	2.000	.000	.000	-7.170	XRMP	1076.5800	IN. XO
RET917	ARC 11-97-87-094 OA161 ORBITER	5.000	.000	.000	-7.170	YMRP	.0000	IN. YO
						ZMRP	375.0000	IN. ZO
						SCALE	.0300	

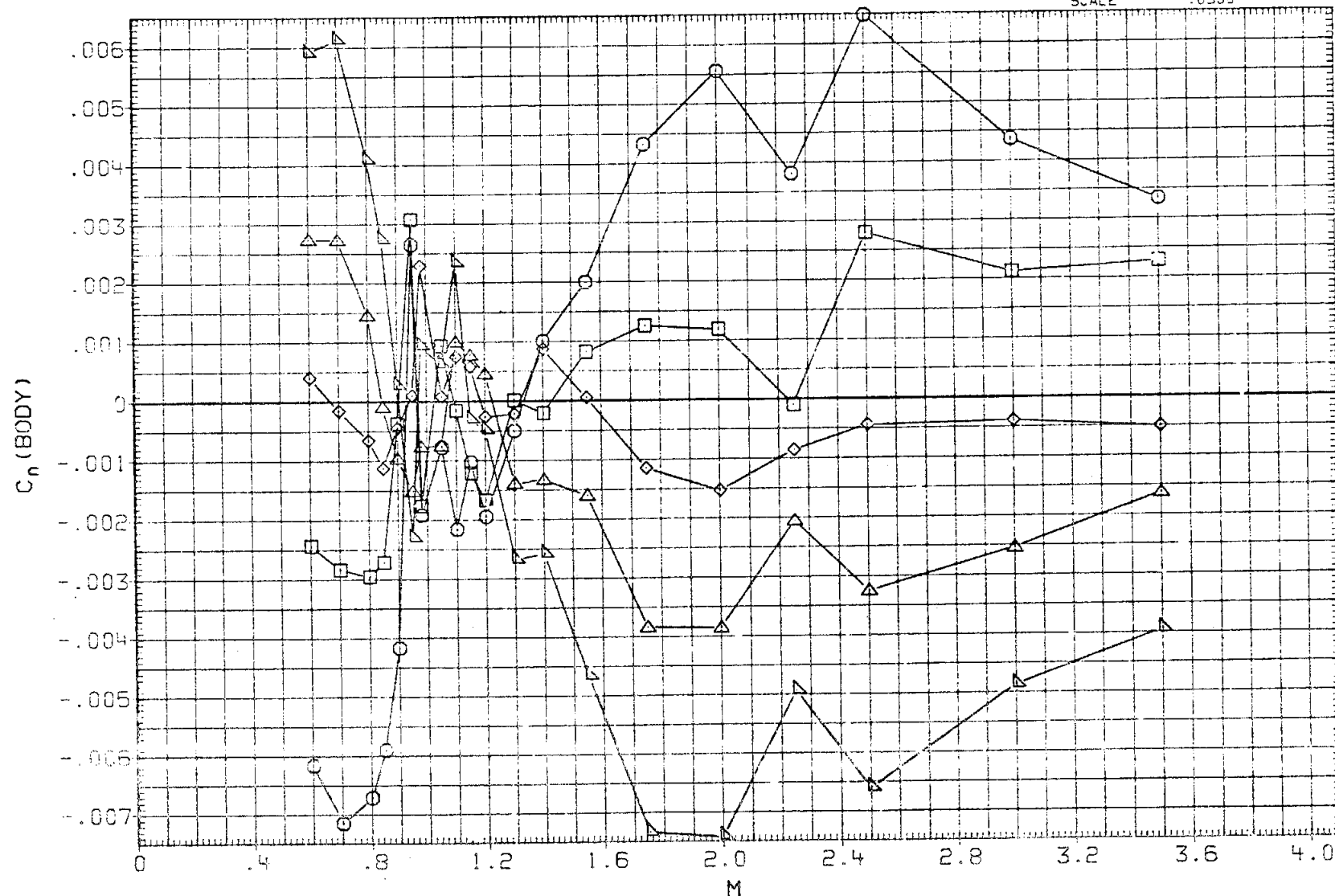


FIG. 8 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH MACH NUMBER

(C) ALPHA = 12.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILERON	BDFLAP	REFERENCE INFORMATION	
RE7913	○	ARC 11-97-87-094 OA161 ORBITER	-5.000	.000	.000	-7.170	SREF	2690.0000 SQ.FT.
RE7914	□	ARC 11-97-87-094 OA161 ORBITER	-2.000	.000	.000	-7.170	LREF	474.8000 IN.
RE7915	◇	ARC 11-97-87-094 OA161 ORBITER	.000	.000	.000	-7.170	BREF	936.6800 IN.
RE7916	△	ARC 11-97-87-094 OA161 ORBITER	2.000	.000	.000	-7.170	XMPP	1076.6800 IN. XO
RE7917	▽	ARC 11-97-87-094 OA161 ORBITER	5.000	.000	.000	-7.170	YMPP	.0000 IN. YO
							ZMRP	375.0000 IN. ZO
							SCALE	.0300

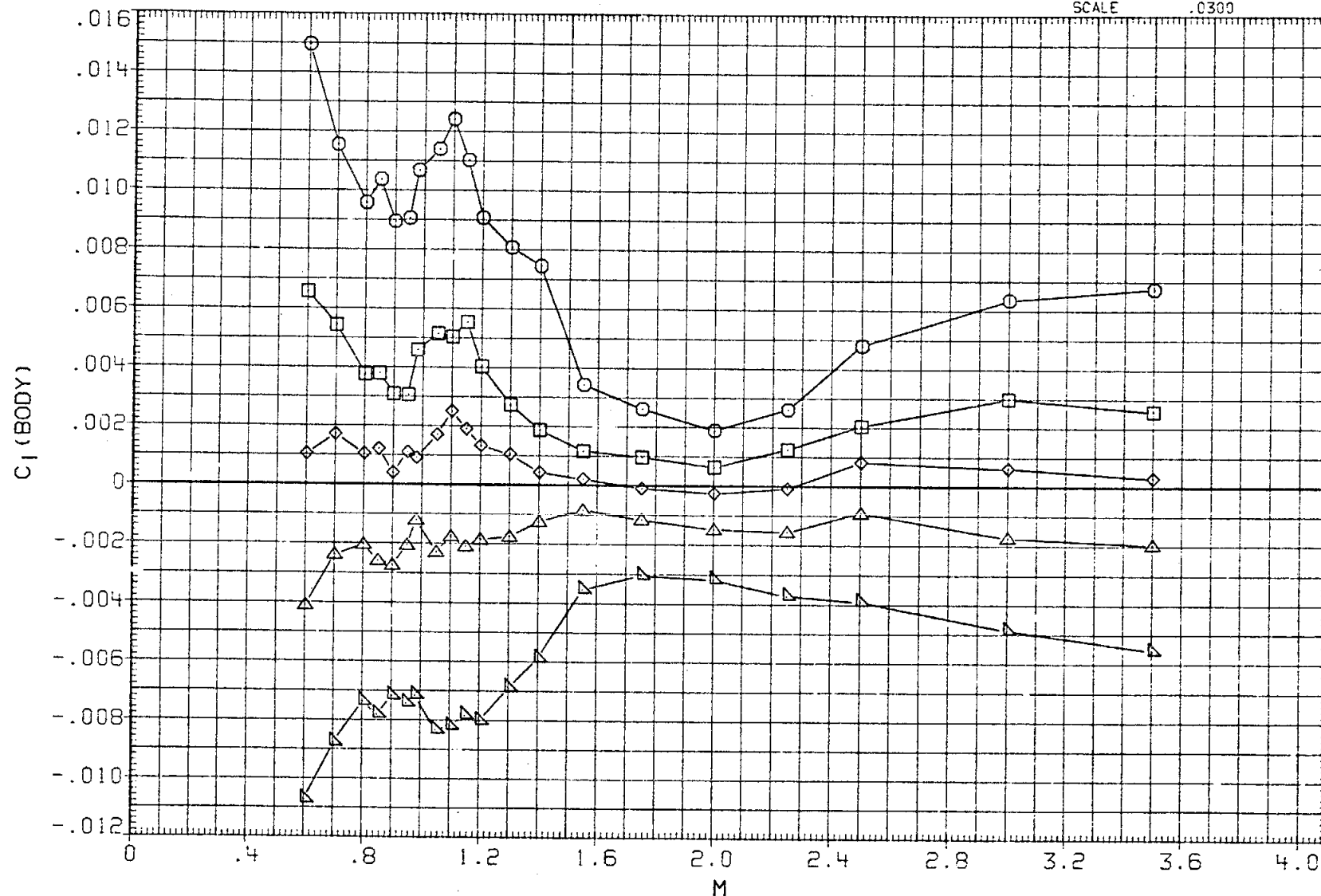


FIG. 8 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH MACH NUMBER

(D) ALPHA = 12.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	DDTLAP	REFERENCE INFORMATION	
RE7913	○	ARC 11-97-87-094 CA161 ORBITER	-0.000	.000	.000	-7.170	SPCF	2690.0000 SQ. FT.
RE7914	□	ARC 11-97-87-094 CA161 ORBITER	-2.000	.000	.000	-7.170	LREF	474.9000 IN.
RE7915	◇	ARC 11-97-87-094 CA161 ORBITER	.000	.000	.000	-7.170	SRF	936.6800 IN.
RE7916	△	ARC 11-97-87-094 CA161 ORBITER	2.000	.000	.000	-7.170	XMRP	1076.6800 IN. XO
RE7917	▽	ARC 11-97-87-094 CA161 ORBITER	5.000	.000	.000	-7.170	YMRP	.0000 IN. YO
							ZMRP	375.0000 IN. ZO
							SCALE	.0300

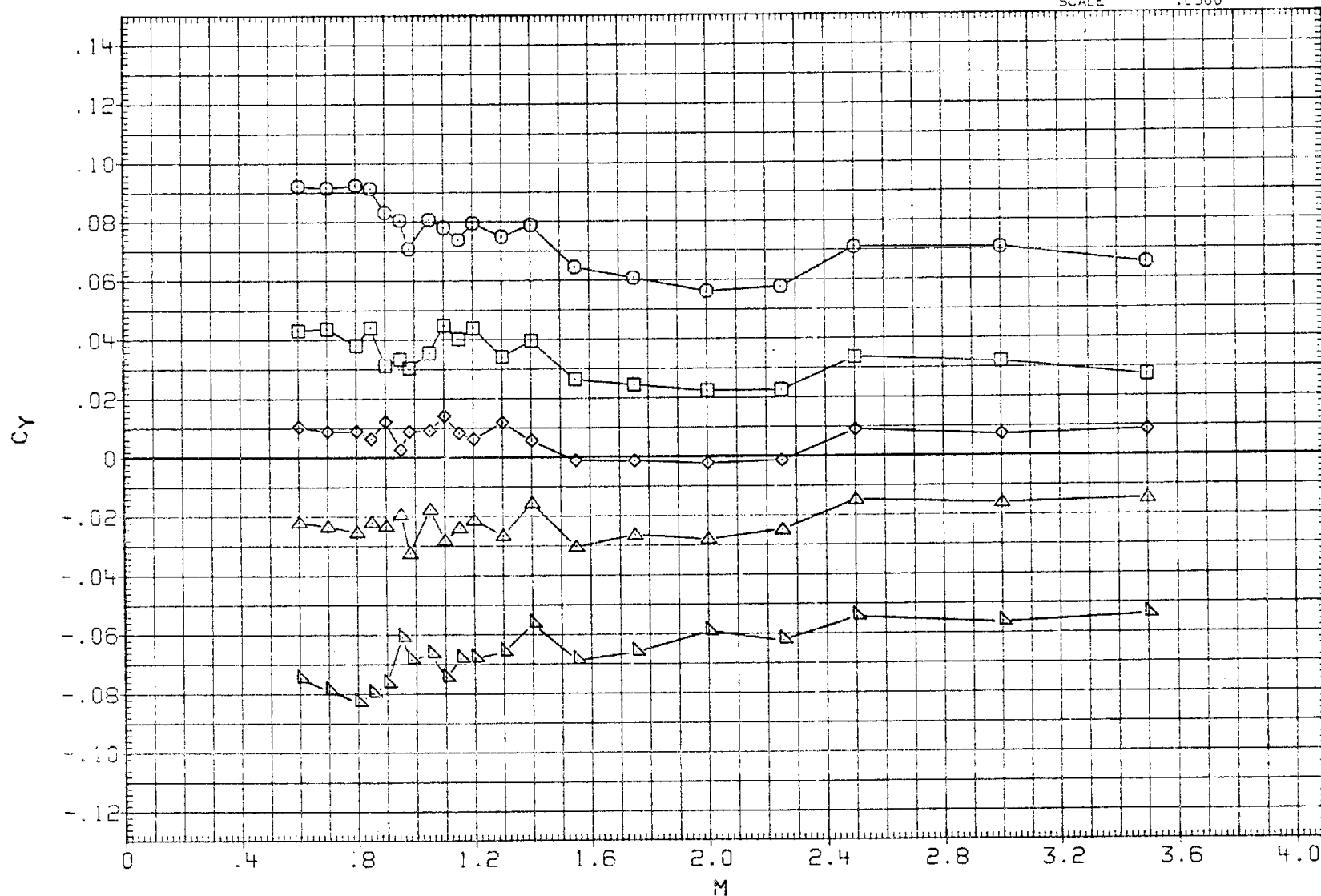


FIG 8 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH MACH NUMBER

(E) ALPHA = 16.00



DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
RE7913	○	ARC 11-97-87-094 OA161 ORBITER	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
RE7914	□	ARC 11-97-87-094 OA161 ORBITER	-2.000	.000	.000	-7.170	LREF	474.8000	IN.
RE7915	◇	ARC 11-97-87-094 OA161 ORBITER	.000	.000	.000	-7.170	BREF	936.6800	IN.
RE7916	△	ARC 11-97-87-094 OA161 ORBITER	2.000	.000	.000	-7.170	XMPP	1076.6800	IN. X0
RE7917	▽	ARC 11-97-87-094 OA161 ORBITER	5.000	.000	.000	-7.170	YMPP	.0000	IN. Y0
							ZMPP	375.0000	IN. Z0
							SCALE	.0300	

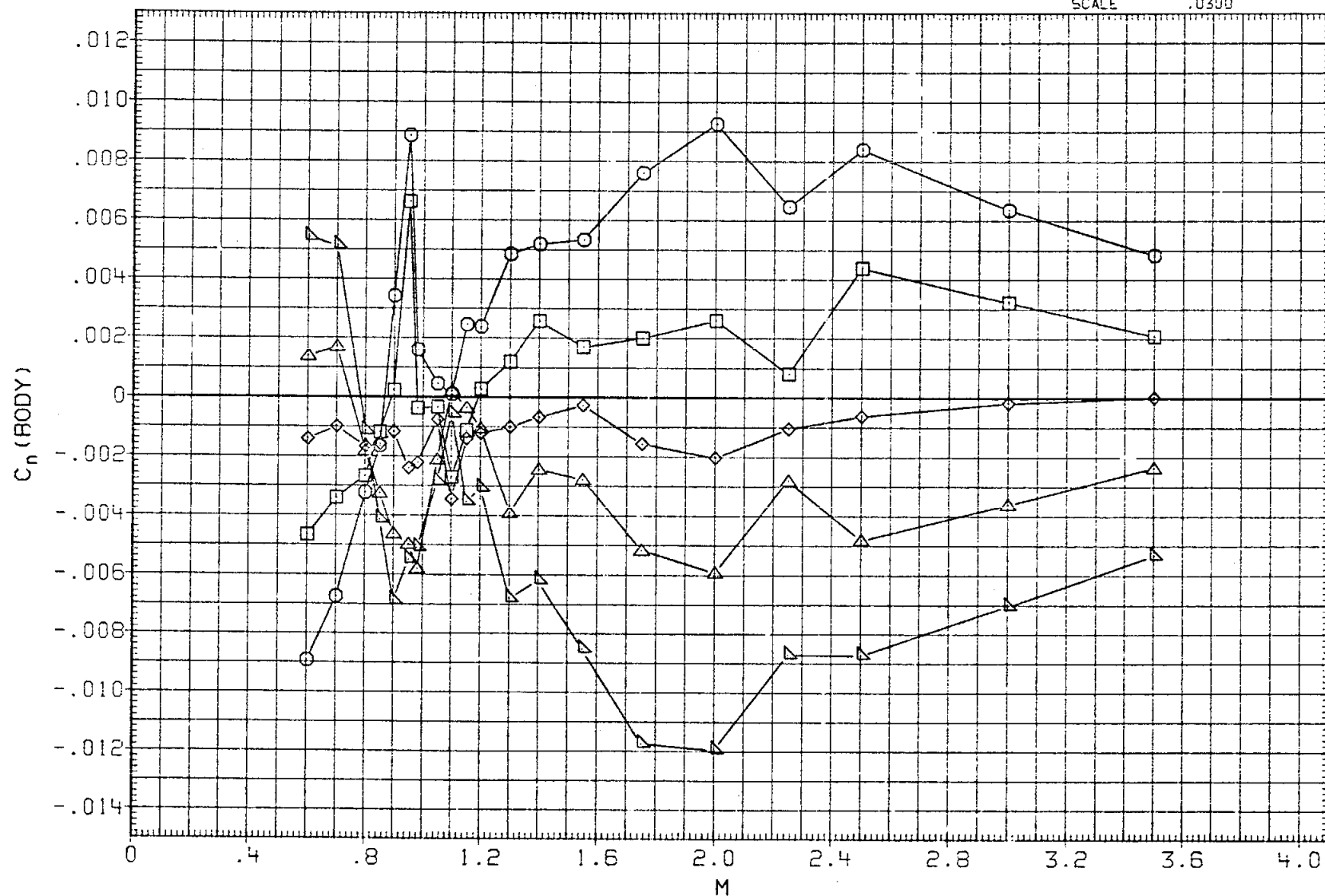


FIG. 8 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH MACH NUMBER

(E) ALPHA = 16.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
RE7913	○	ARC 11-97-87-094 OA161 ORBITER	-5.000	.000	.000	-7.170	SREF	2690.0000	50. FT.
RE7914	□	ARC 11-97-87-094 OA161 ORBITER	-2.000	.000	.000	-7.170	LREF	474.8000	IN.
RE7915	◇	ARC 11-97-87-094 OA161 ORBITER	.000	.000	.000	-7.170	BREF	936.6800	IN.
RE7916	△	ARC 11-97-87-094 OA161 ORBITER	2.000	.000	.000	-7.170	XMRP	1076.6800	IN. XO
RE7917	▽	ARC 11-97-87-094 OA161 ORBITER	5.000	.000	.000	-7.170	YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0390	

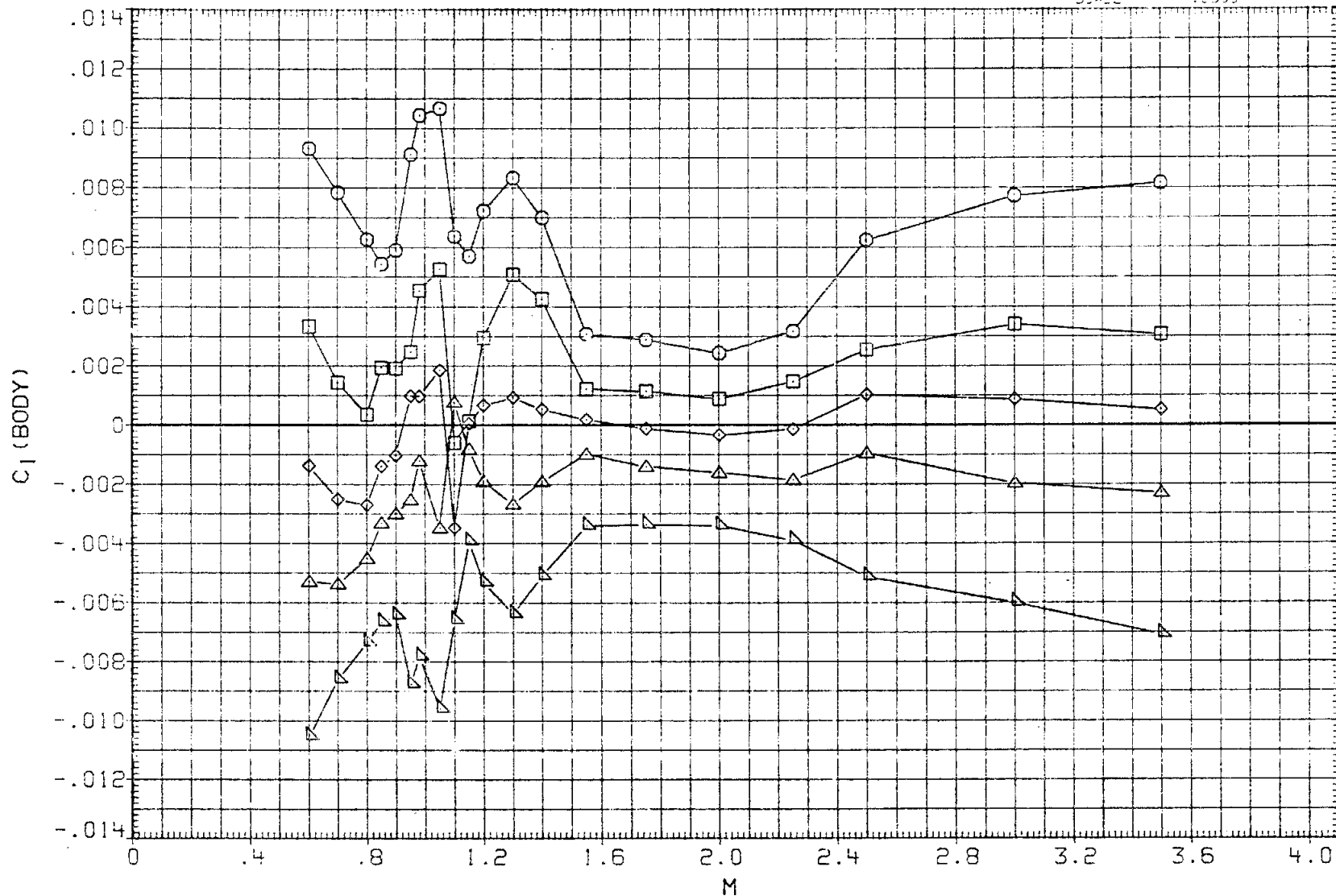


FIG. 8 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH MACH NUMBER

(E) ALPHA = 16.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
ARC 11-97-87-094	○	0A16! ORBITER	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
ARC 11-97-87-094	□	0A16! ORBITER	-2.000	.000	.000	-7.170	LREF	474.8000	IN.
ARC 11-97-87-094	◇	0A16! ORBITER	.000	.000	.000	-7.170	BREF	936.6800	IN.
ARC 11-97-87-094	△	0A16! ORBITER	2.000	.000	.000	-7.170	XMPP	1076.6800	IN. XO
ARC 11-97-87-094	▽	0A16! ORBITER	5.000	.000	.000	-7.170	YMPP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

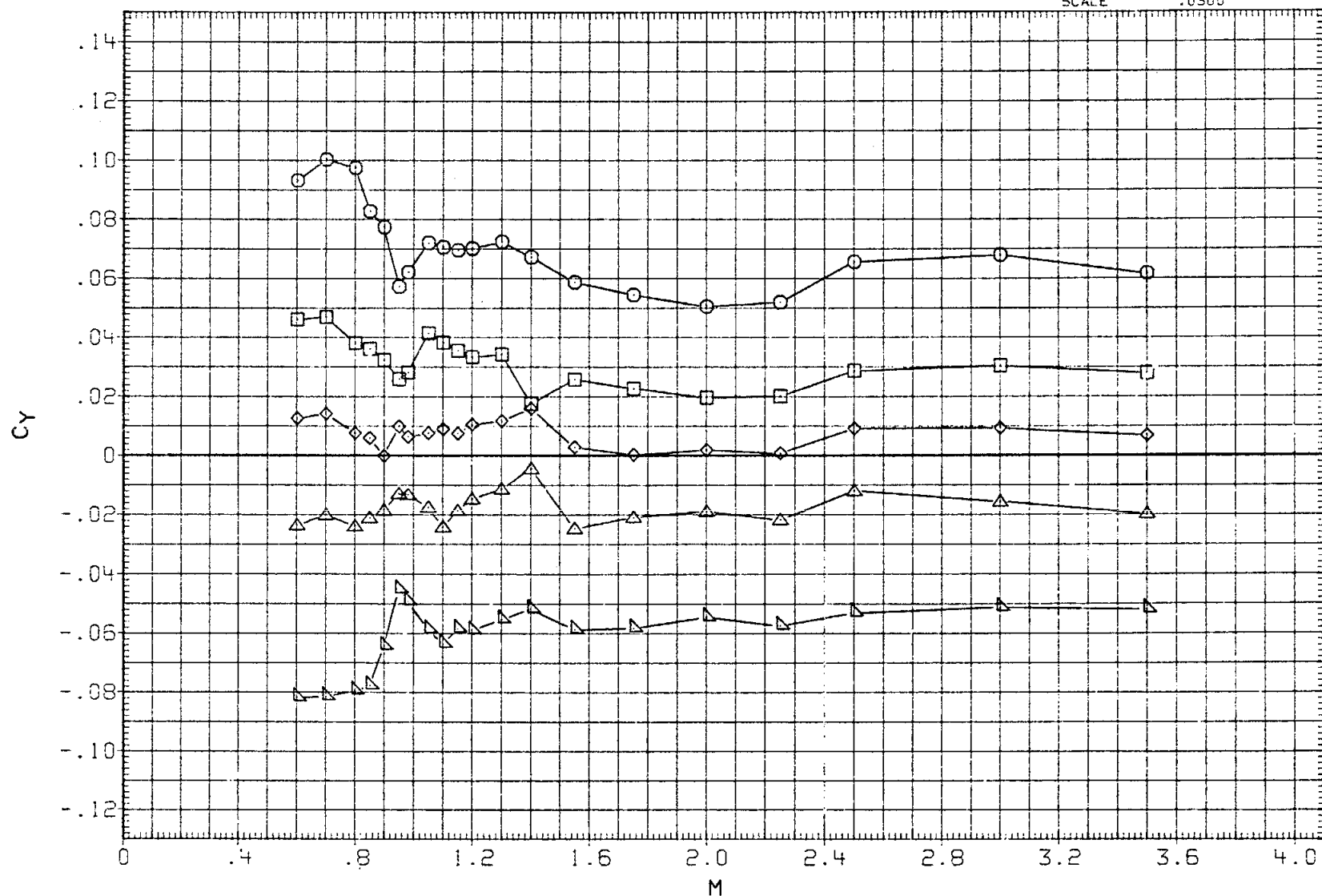


FIG. 8 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH MACH NUMBER

(F) ALPHA = 20.00

DATA SET SYMBOL		CONFIGURATION	BETA	ELEVON	AILRON	EDFLAP	REFERENCE INFORMATION		
RET9:3	○	ARC 11-97-87-094 OA16: ORBITER	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
RET9:4	□	ARC 11-97-87-094 OA16: ORBITER	-2.000	.000	.000	-7.170	LREF	474.8000	IN.
RET9:5	◇	ARC 11-97-87-094 OA16: ORBITER	.000	.000	.000	-7.170	BREF	935.5800	IN.
RET9:6	△	ARC 11-97-87-094 OA16: ORBITER	2.000	.000	.000	-7.170	XMPP	1076.6900	IN. XC
RET9:7	▽	ARC 11-97-87-094 OA16: ORBITER	5.000	.000	.000	-7.170	YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0300	

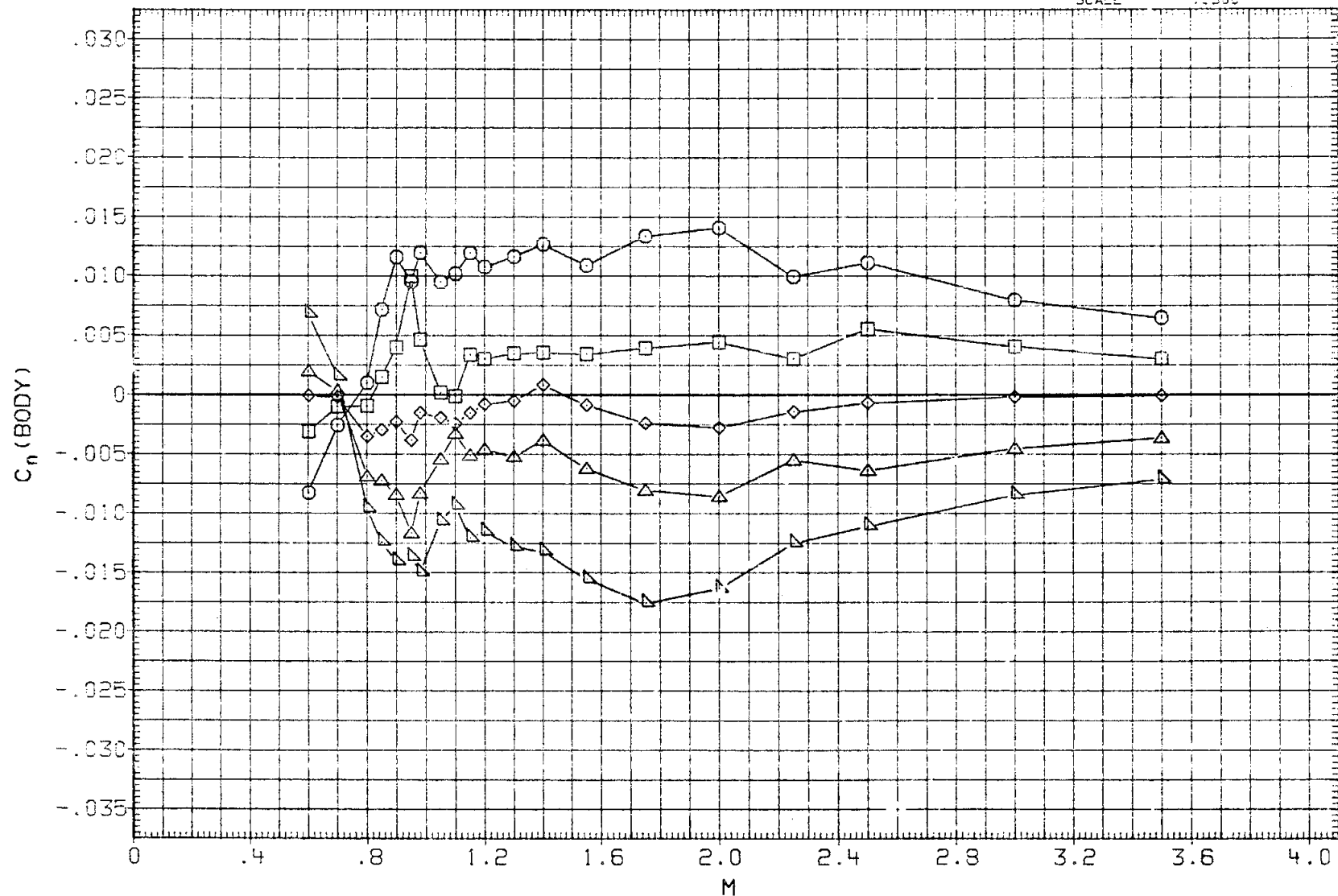


FIG. 8 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH MACH NUMBER

(F) ALPHA = 20.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
RE7913	○	ARC 11-97-87-094 OA161 ORBITER	-5.000	.000	.000	-7.170	SREF	2690.0000	50. FT.
RE7914	□	ARC 11-97-87-094 OA161 ORBITER	-2.000	.000	.000	-7.170	LREF	474.8000	IN.
RE7915	◇	ARC 11-97-87-094 OA161 ORBITER	.000	.000	.000	-7.170	BREF	936.6800	IN.
RE7916	△	ARC 11-97-87-094 OA161 ORBITER	2.000	.000	.000	-7.170	XMPP	1076.6800	IN. XO
RE7917	▽	ARC 11-97-87-094 OA161 ORBITER	5.000	.000	.000	-7.170	YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0170	

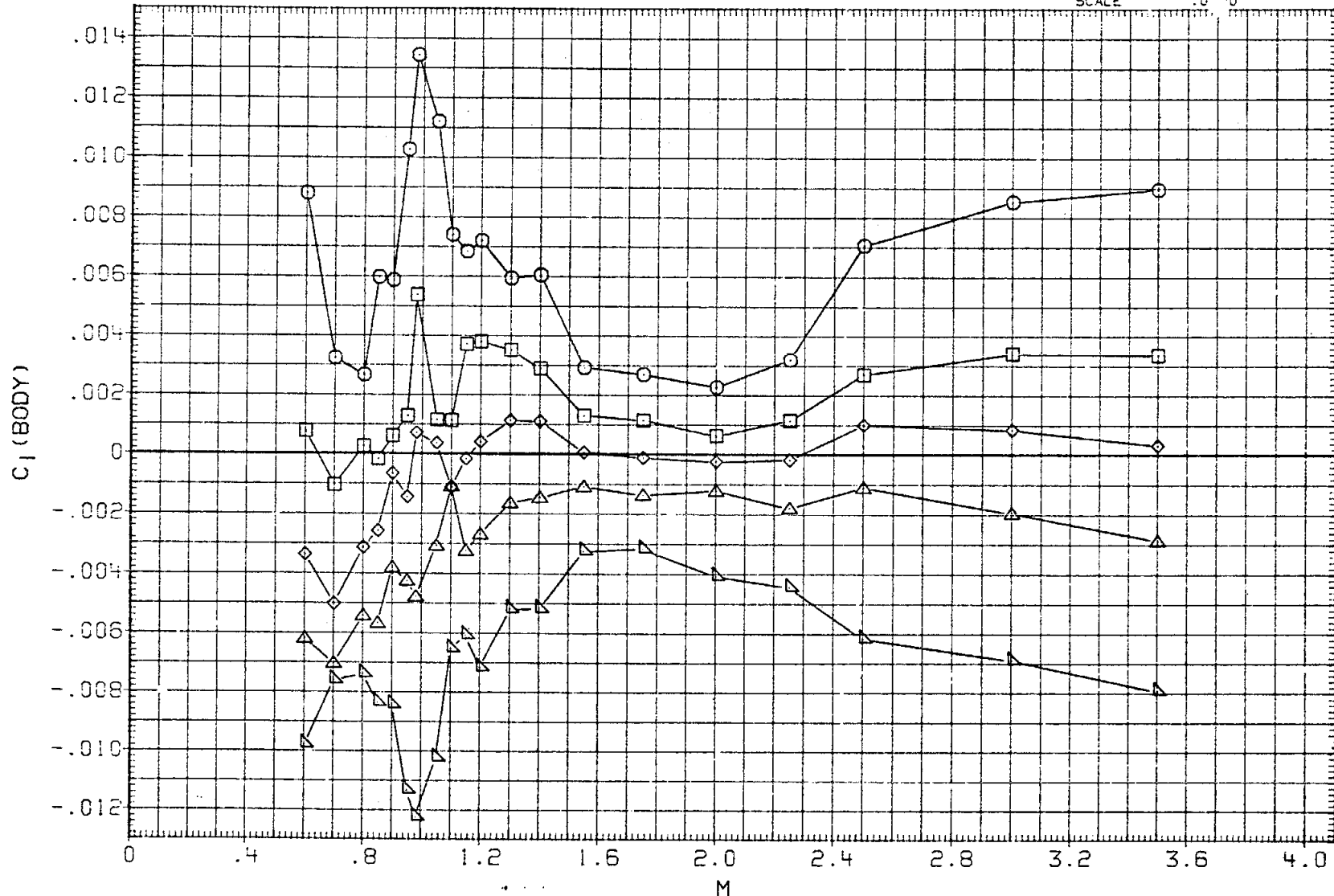


FIG. 8 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH MACH NUMBER

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	ATLON	BDPLAP	REFERENCE INFORMATION		
RE7913	○	ARC 11-97-87-094 0A161 ORBITER	-5.000	.000	.000	-7.170	SREF	2690.0000	50. FT
RE7914	□	ARC 11-97-87-094 0A161 ORBITER	-2.000	.000	.000	-7.170	LREF	474.8000	IN.
RE7915	◇	ARC 11-97-87-094 0A161 ORBITER	.000	.000	.000	-7.170	BREF	936.5800	IN.
RE7916	△	ARC 11-97-87-094 0A161 ORBITER	3.000	.000	.000	-7.170	XMPP	1076.6000	IN. XO
RE7917	▽	ARC 11-97-87-094 0A161 ORBITER	5.000	.000	.000	-7.170	YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0300	

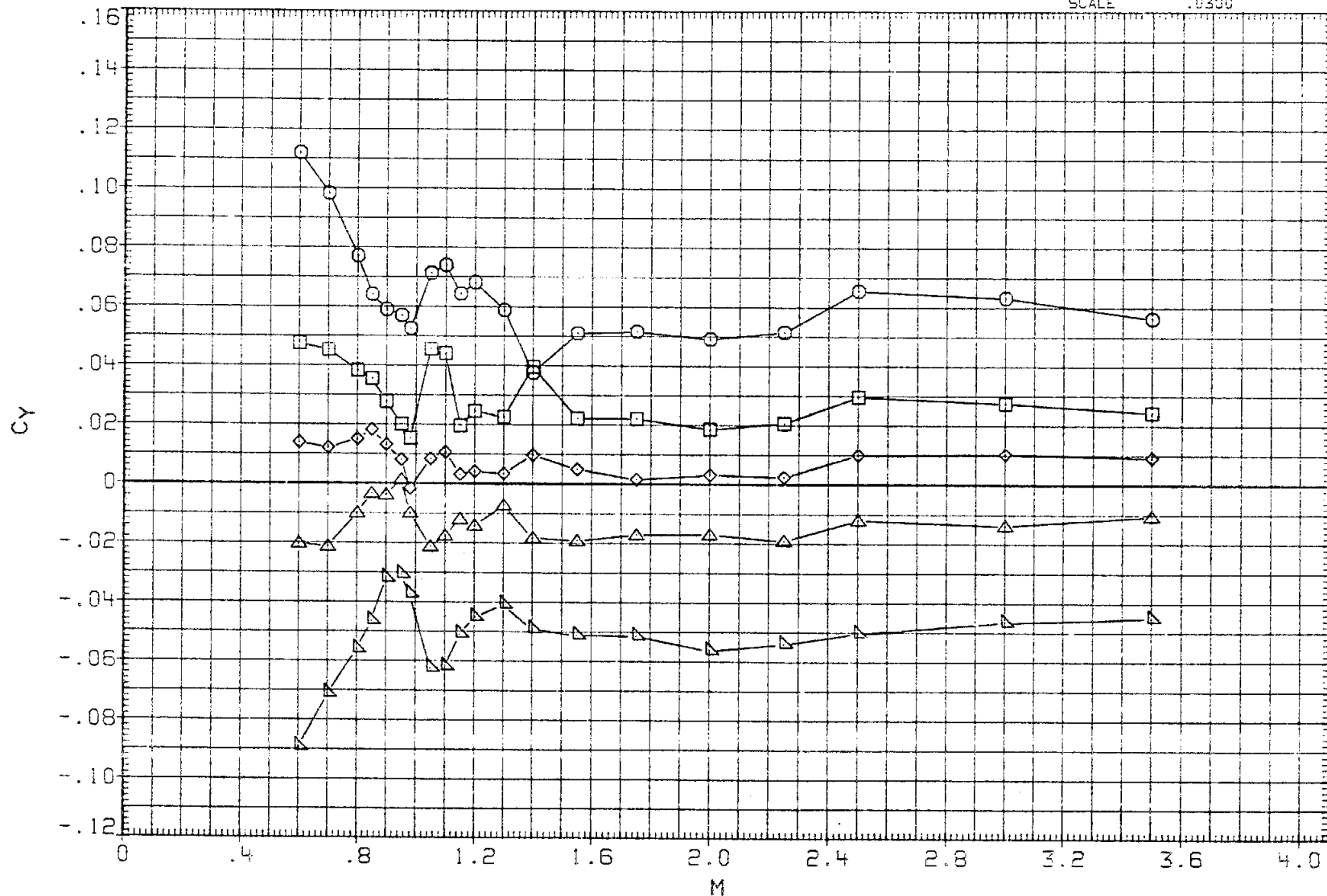


FIG. 8 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH MACH NUMBER

(G) ALPHA = 24.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
RE7913	○	ARC 11-97-87-094 OA161 ORBITER	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
RE7914	□	ARC 11-97-87-094 OA161 ORBITER	-2.000	.000	.000	-7.170	LREF	474.8000	IN.
RE7915	◇	ARC 11-97-87-094 OA161 ORBITER	.000	.000	.000	-7.170	BREF	936.6800	IN.
RE7916	△	ARC 11-97-87-094 OA161 ORBITER	2.000	.000	.000	-7.170	XMRP	1076.6800	IN. XO
RE7917	▽	ARC 11-97-87-094 OA161 ORBITER	5.000	.000	.000	-7.170	YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

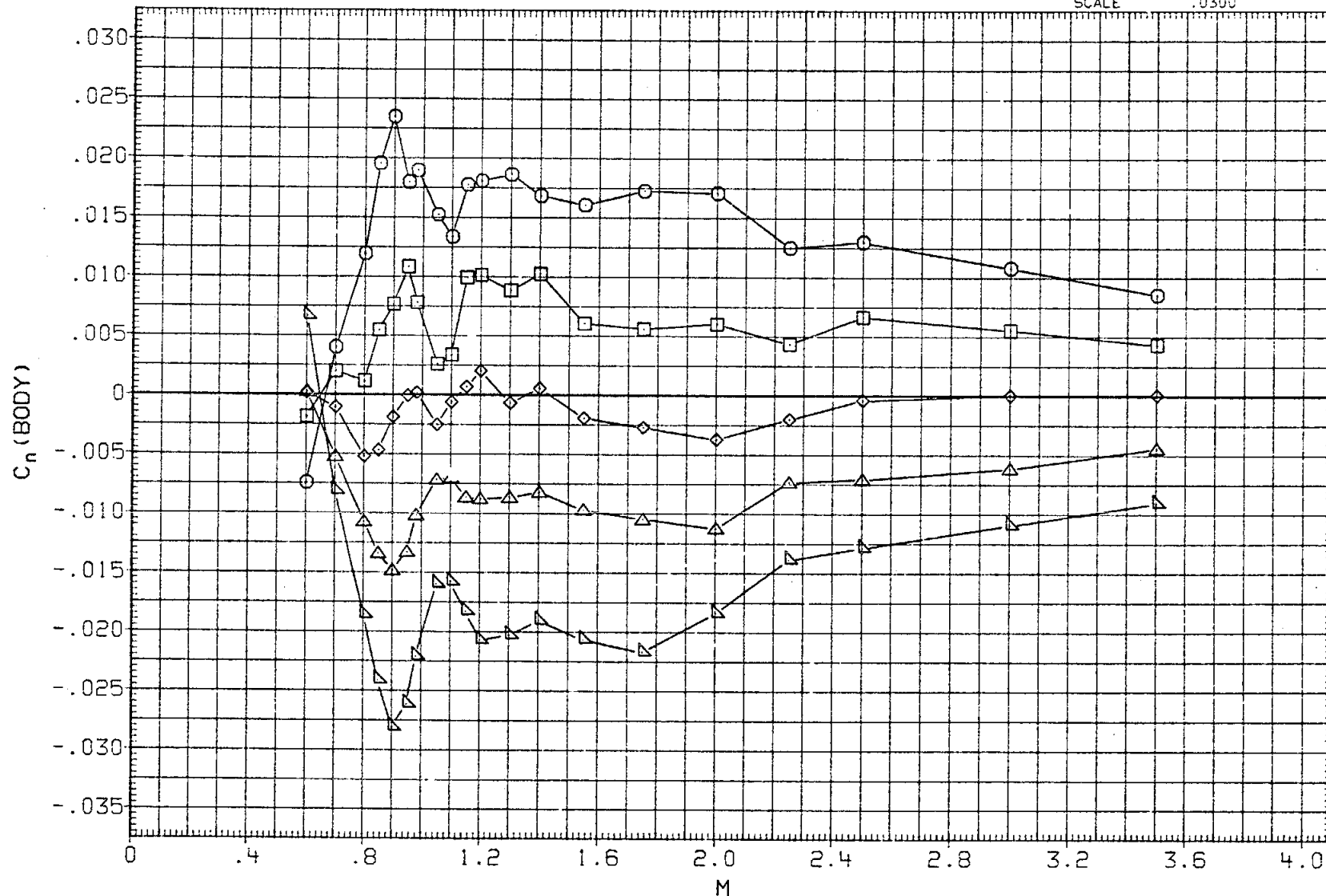


FIG. 8 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH MACH NUMBER

(G) ALPHA = 24.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
RE7913	○	ARC 11-97-87-094 CA161 ORBITER	-5.000	.000	.000	-7.170	SREF	2690.0000	50. FT.
RE7914	□	ARC 11-97-87-094 CA161 ORBITER	-2.000	.000	.000	-7.170	LREF	474.8000	IN.
RE7915	◇	ARC 11-97-87-094 CA161 ORBITER	.000	.000	.000	-7.170	BREF	936.6800	IN.
RE7916	△	ARC 11-97-87-094 CA161 ORBITER	2.000	.000	.000	-7.170	XMPP	1075.6800	IN. XO
RE7917	▽	ARC 11-97-87-094 CA161 ORBITER	5.000	.000	.000	-7.170	YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0200	

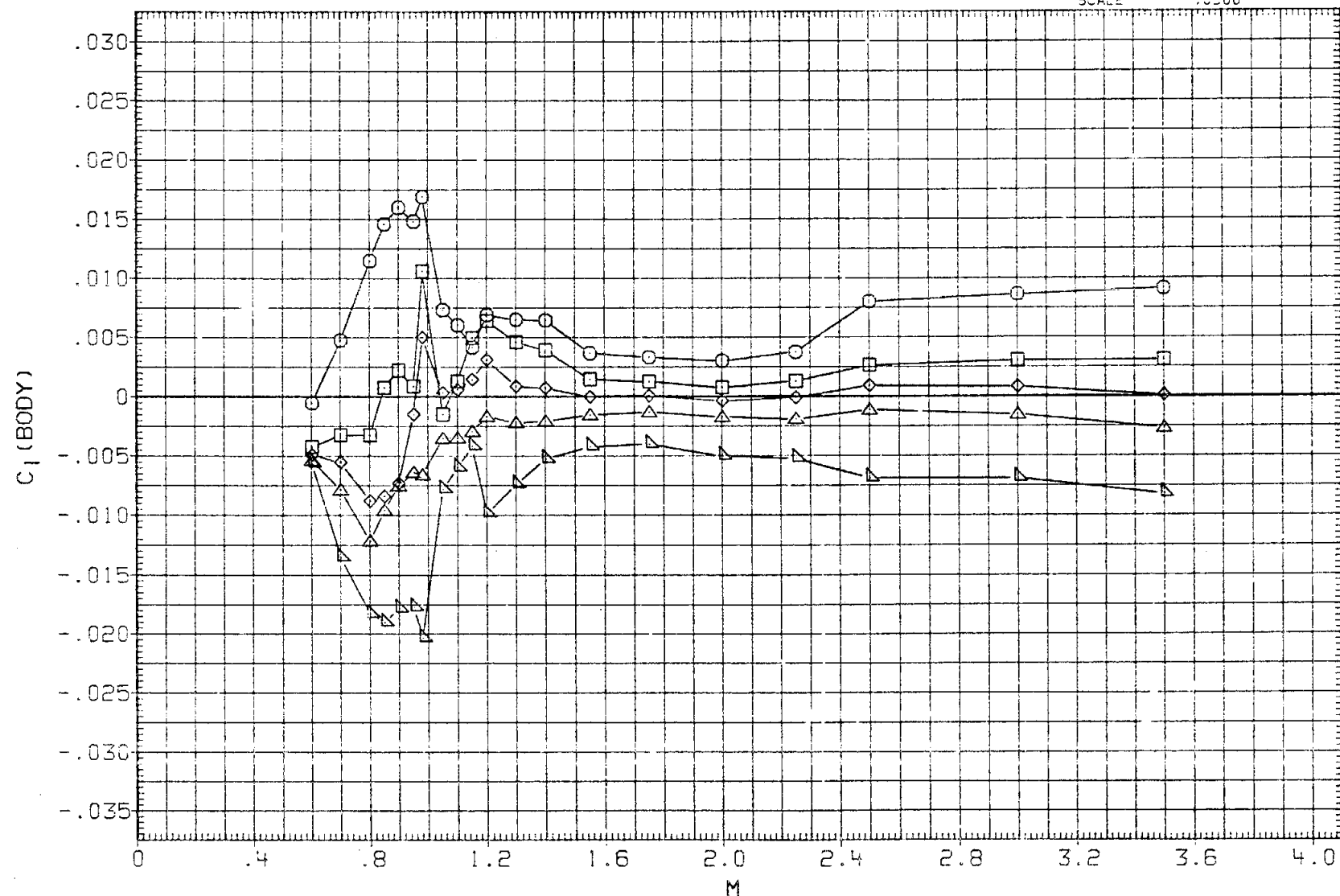


FIG. 8 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH MACH NUMBER

(G) ALPHA = 24.00



(PE7813) ARC 11-97-87-094 0A161 ORBITER

SYMBOL	BETA	PARAMETRIC VALUES			
○	-5.000	MACH	.600	ALPHA	.000
□	-2.000	ELEVON	.000	BOFLAP	-7.170
◇	.000				
△	2.000				
	5.000				

REFERENCE INFORMATION

SREF	2690.0000	50 FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	275.0000	IN. ZO
SCALE	.0300	

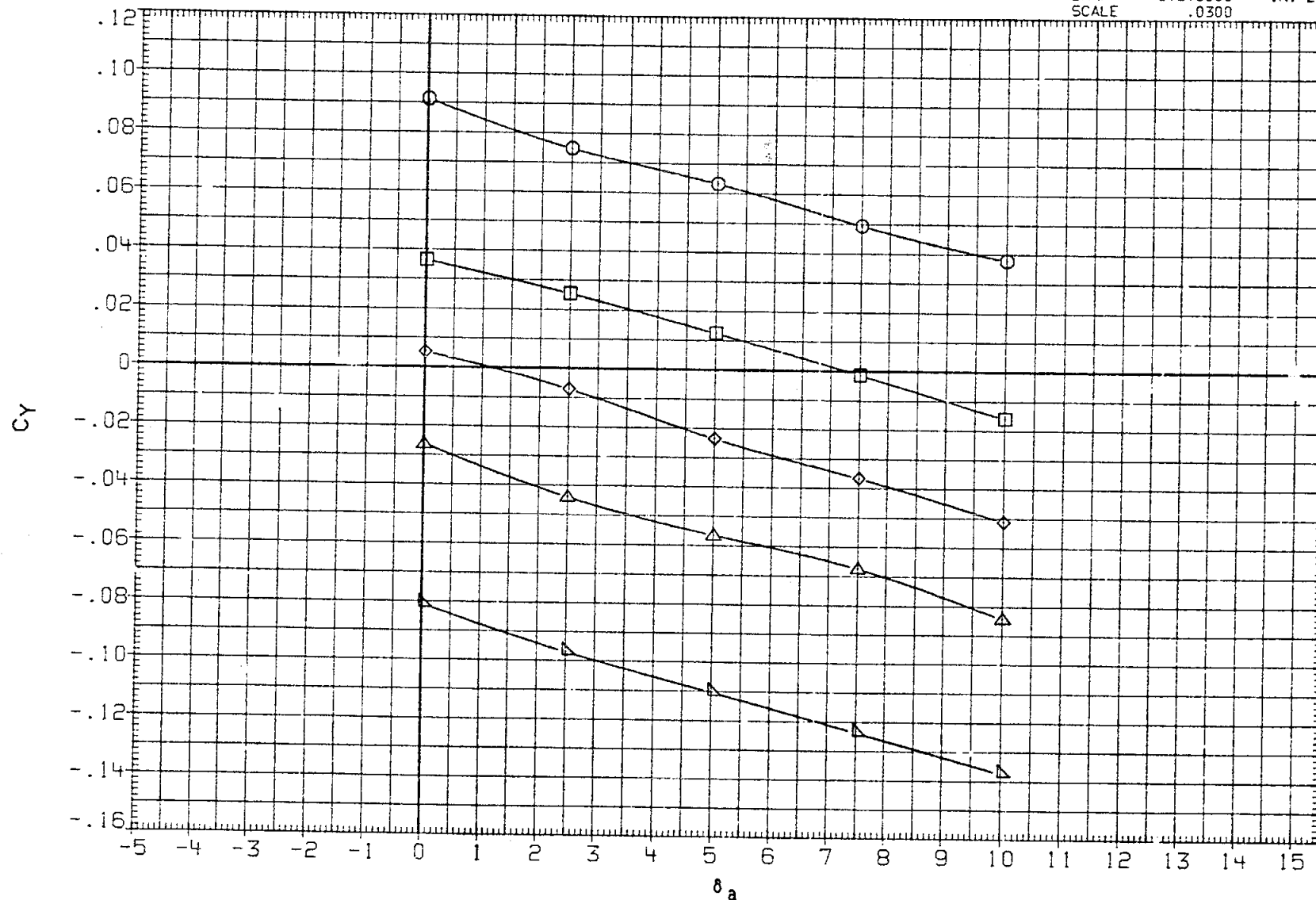


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL

BETA

PARAMETRIC VALUES

○  
□  
◇  
△

-5.000  
-2.000  
.000  
2.000  
5.000

MACH  
ELEVON

.600  
.000

ALPHA  
BDFLAP

4.000  
-7.170

REFERENCE INFORMATION

SREF 2690.0000 SQ. FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

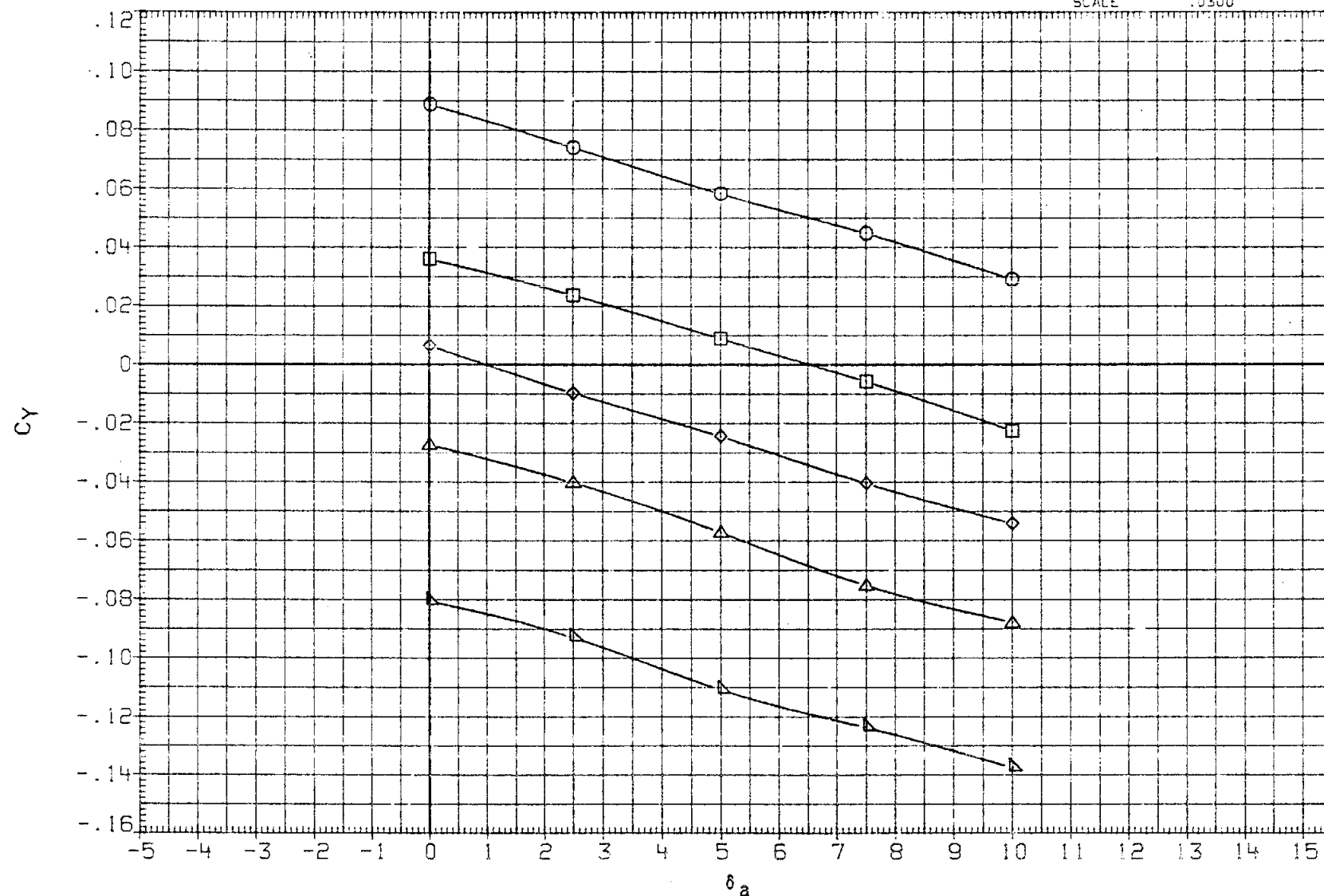


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	BETA	PARAMETRIC VALUES			
		MACH	ELEVON	ALPHA	BDFLAP
000000	-5.000			8.000	
	-2.000			-7.170	
	.000				
	2.000				
	5.000				

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
XMPP	1076.6800	IN. X0
YMPP	.0000	IN. Y0
ZMPP	375.0000	IN. Z0
SCALE	.0300	

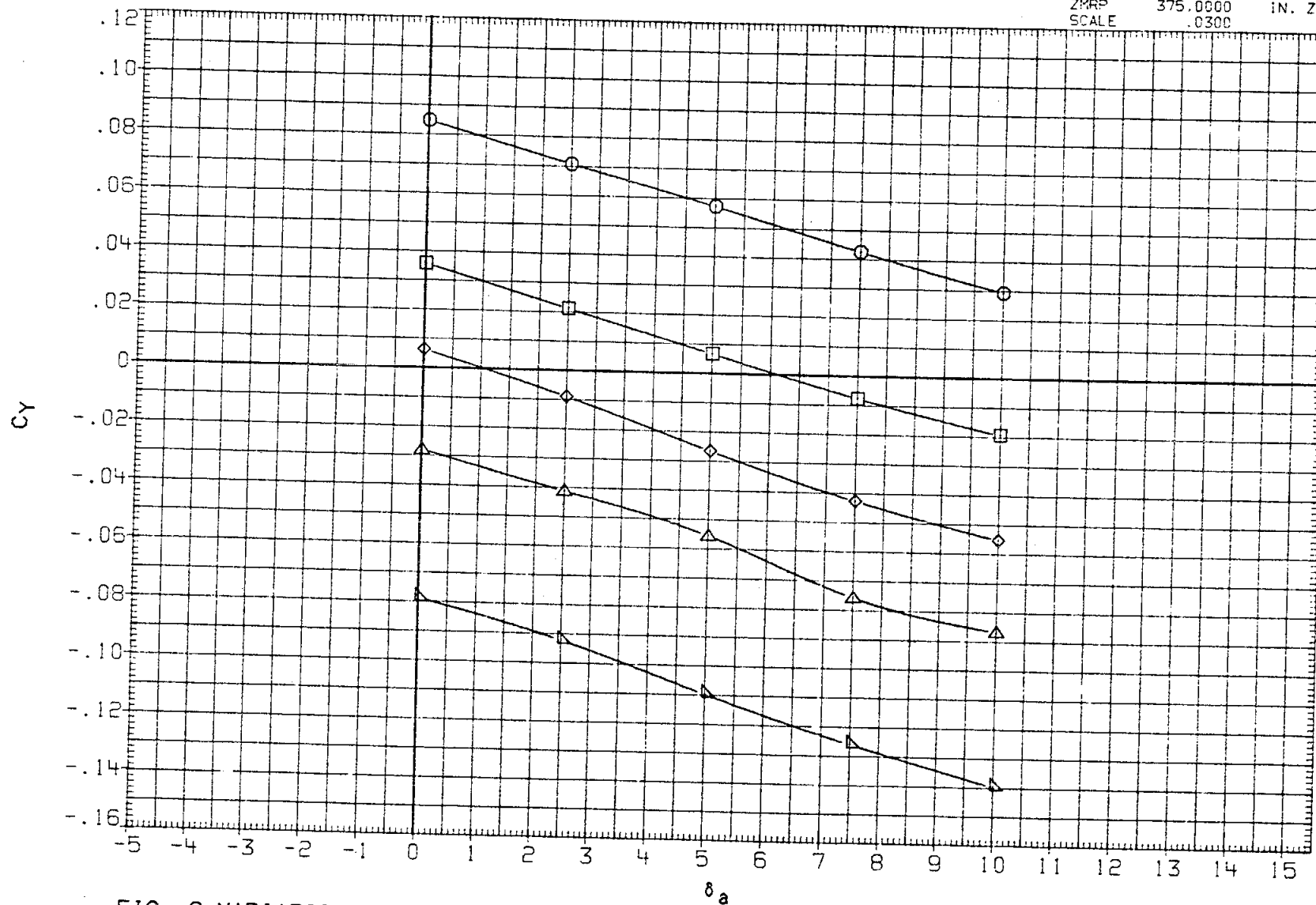


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL

BETA

PARAMETRIC VALUES

011044

-5.000  
-2.000  
.000  
2.000  
5.000MACH  
ELEVON.600  
.000ALPHA  
BDFLAP12.000  
-7.170

REFERENCE INFORMATION

SREF	2690.0000	SO. FT.
LREF	474.8000	IN.
BREF	936.6300	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

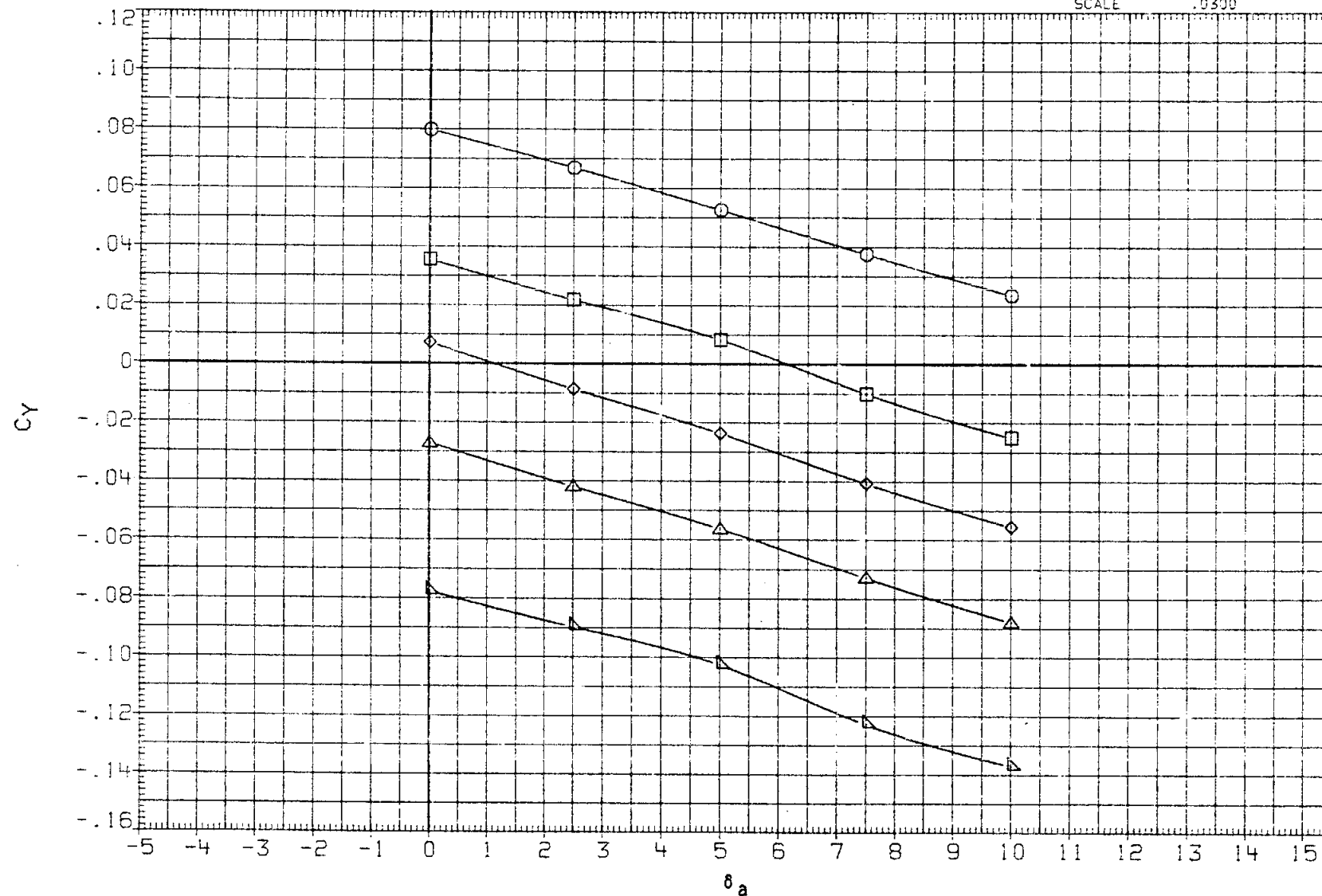


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	BETA	MACH	ELEVON	PARAMETRIC VALUES	ALPHA	BDFLAP
○	-5.000				16.000	
□	-2.000					-7.170
◇	.000					
△	2.000					
▽	5.000					

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XC
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

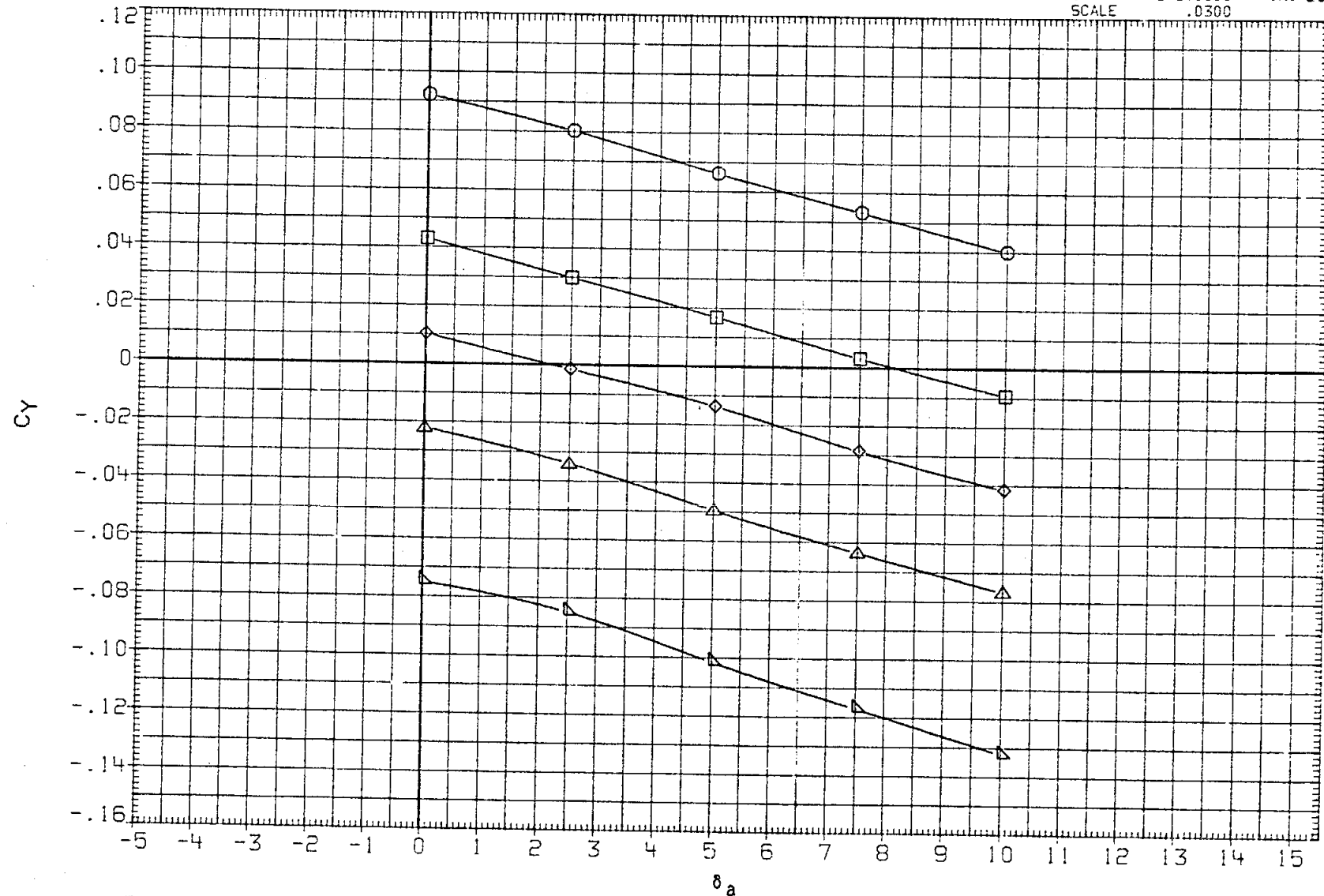


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

PARAMETRIC VALUES	
BETA	-5.000
MACH	.600
ALPHA	20.000
ELEVON	.000
BDFLAP	-7.170
	.000
	2.000
	5.000

REFERENCE INFORMATION		
SREF	2690.0000	SO. FT.
LREF	474.6000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

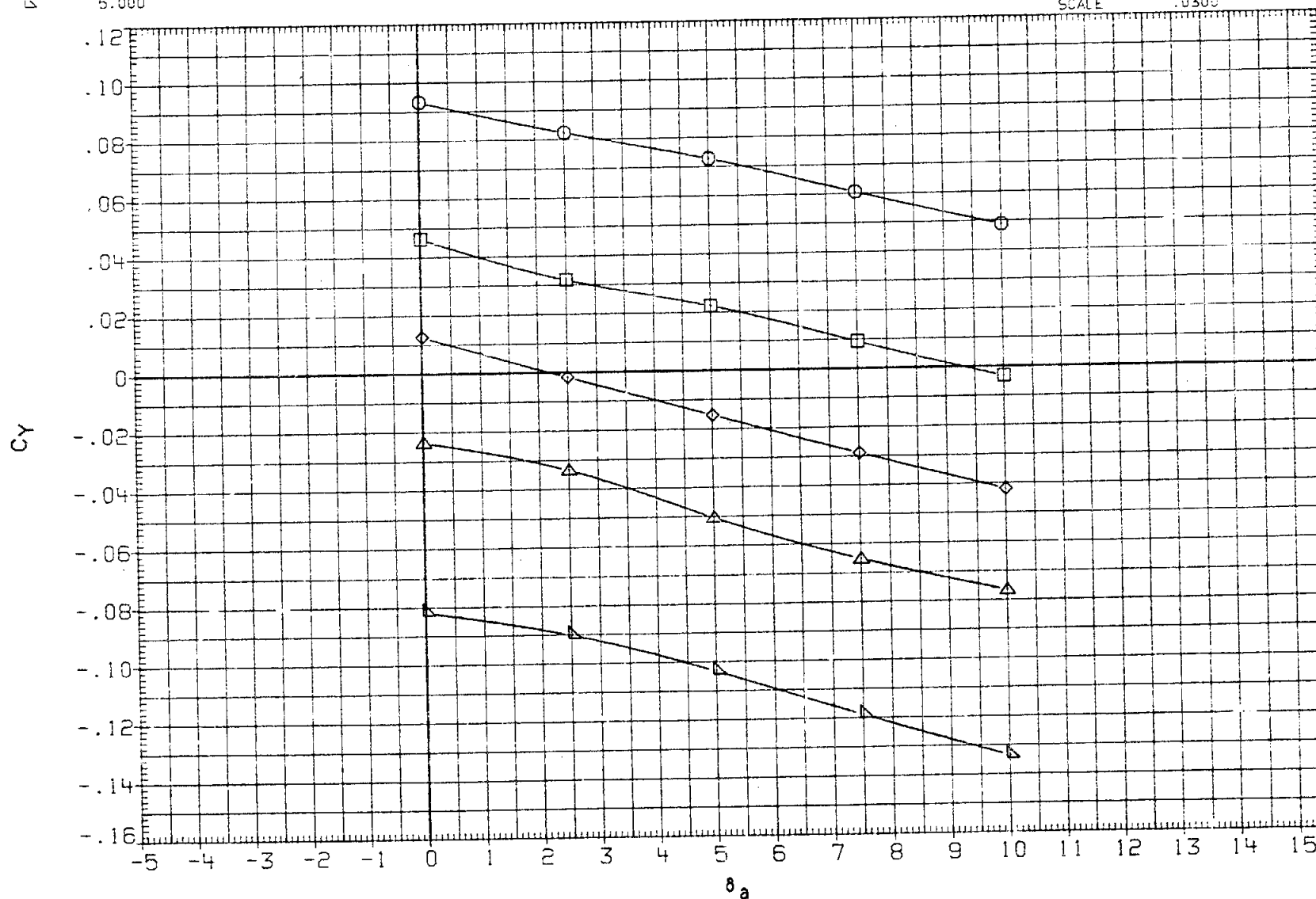


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	BETA	MACH	ELEVON	PARAMETRIC VALUES	ALPHA	BDFLAP
○	-5.000	.900	.000		.000	
□	-2.000	.900	.000		-7.170	
◇	.000	.900	.000			
△	2.000	.900	.000			
▽	5.000	.900	.000			

REFERENCE INFORMATION

SREF	2690.0000	SQ. FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

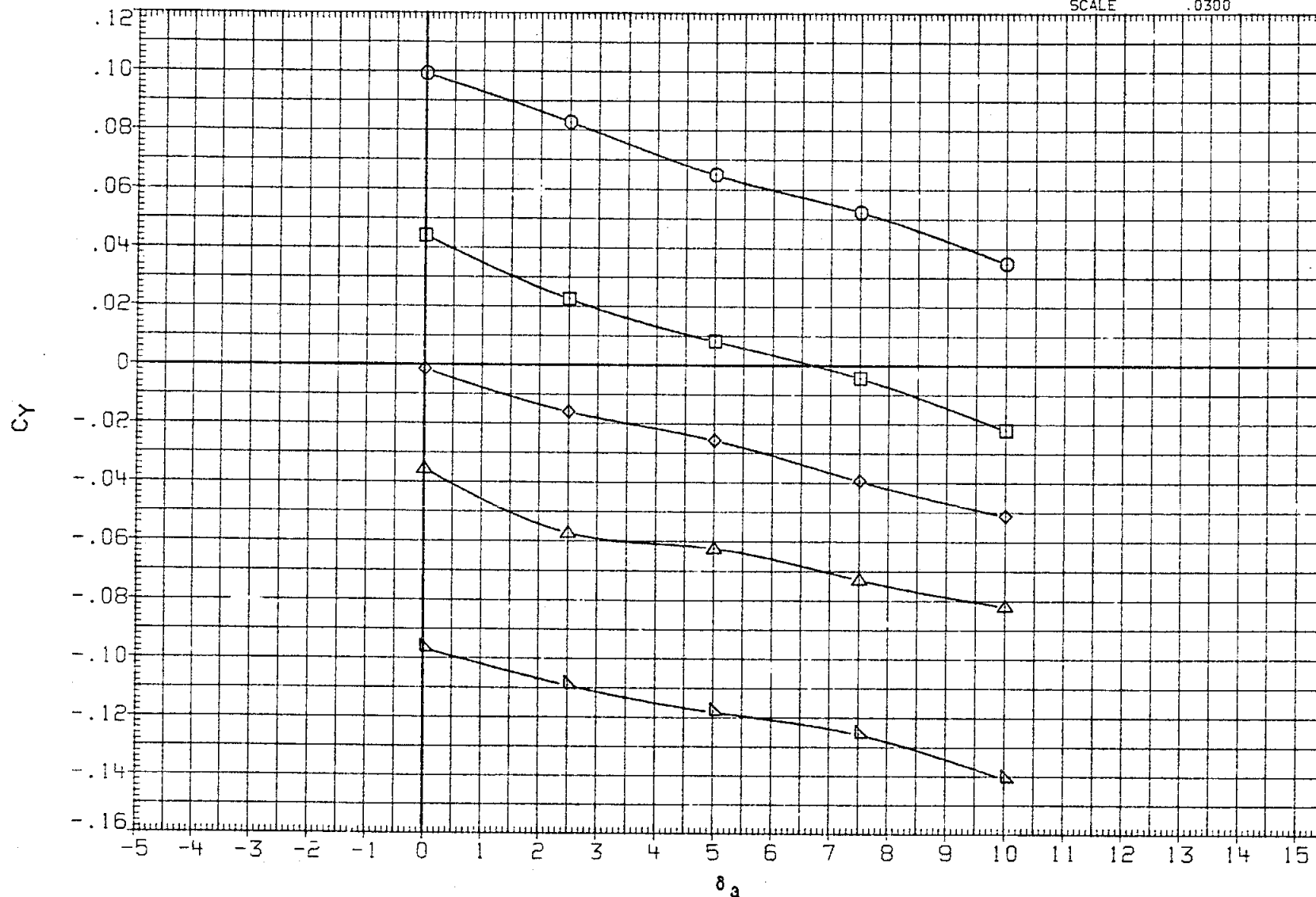


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL

BETA

PARAMETRIC VALUES

○  
□  
◇  
△  
▽

-5.000  
-2.000  
.000  
2.000  
5.000

MACH  
ELEVON

.900  
.000

ALPHA  
BOFLAP

4.000  
-7.170

REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 935.5800 IN.  
XMRP 1076.6500 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

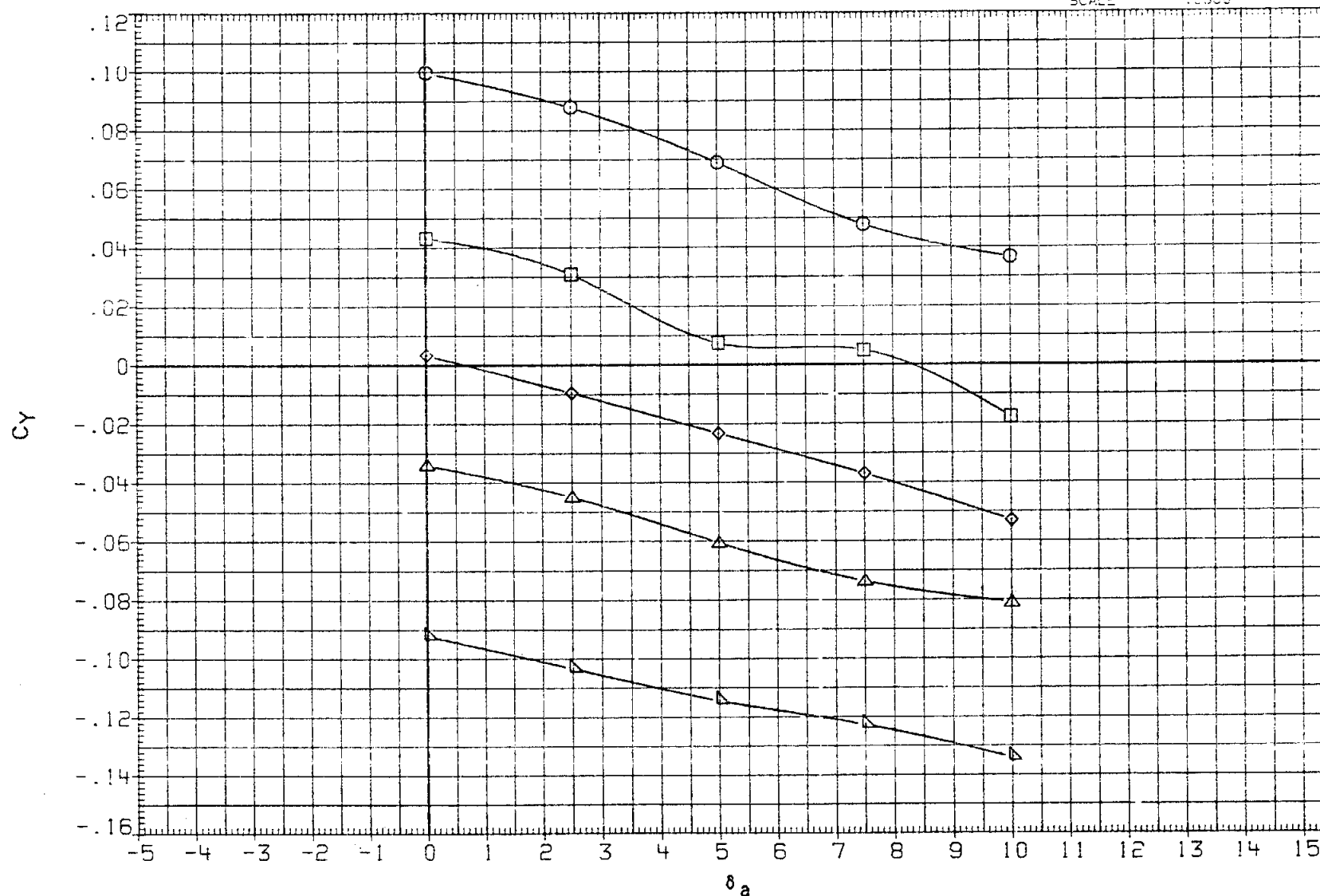


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON



(PE7813) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	BETA	MACH	ELEVON	PARAMETRIC VALUES	ALPHA	BD FLAP
○	-5.000	.900	.000	8.000	-7.170	
□	-2.000					
◇	.000					
△	2.000					
▽	5.000					

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

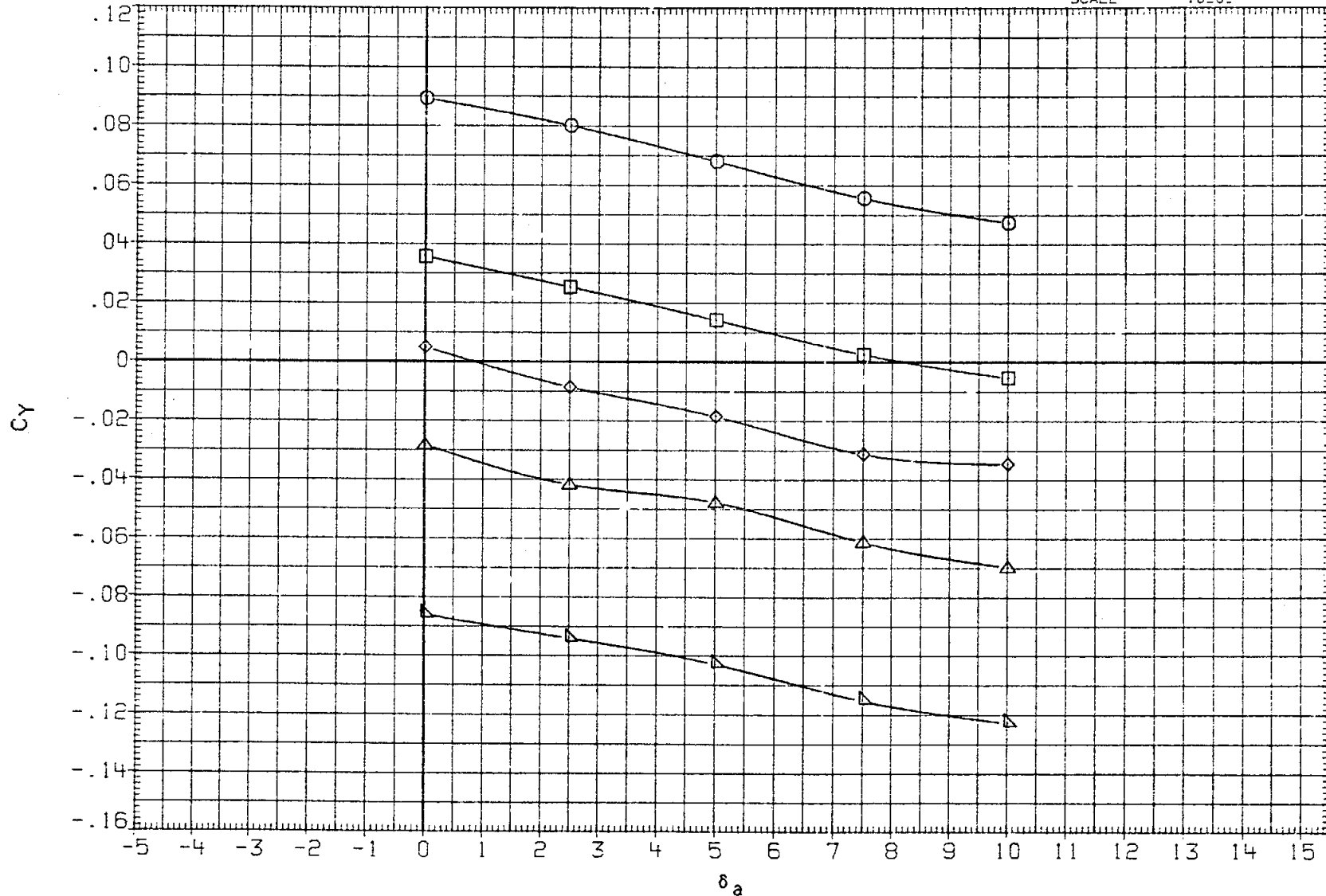


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL

BETA

PARAMETRIC VALUES

○ □ ◇ △

-5.000  
-2.000  
0.000  
2.000  
5.000

MACH  
ELEVON

.900  
.000

ALPHA  
BOFLAP

18.000  
-7.170

REFERENCE INFORMATION

SREF 2890.0000 50.FT.  
LREF 474.0000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. Y0  
YMRP .0000 IN. Y0  
ZMRP 375.0000 IN. Z0  
SCALE .0300

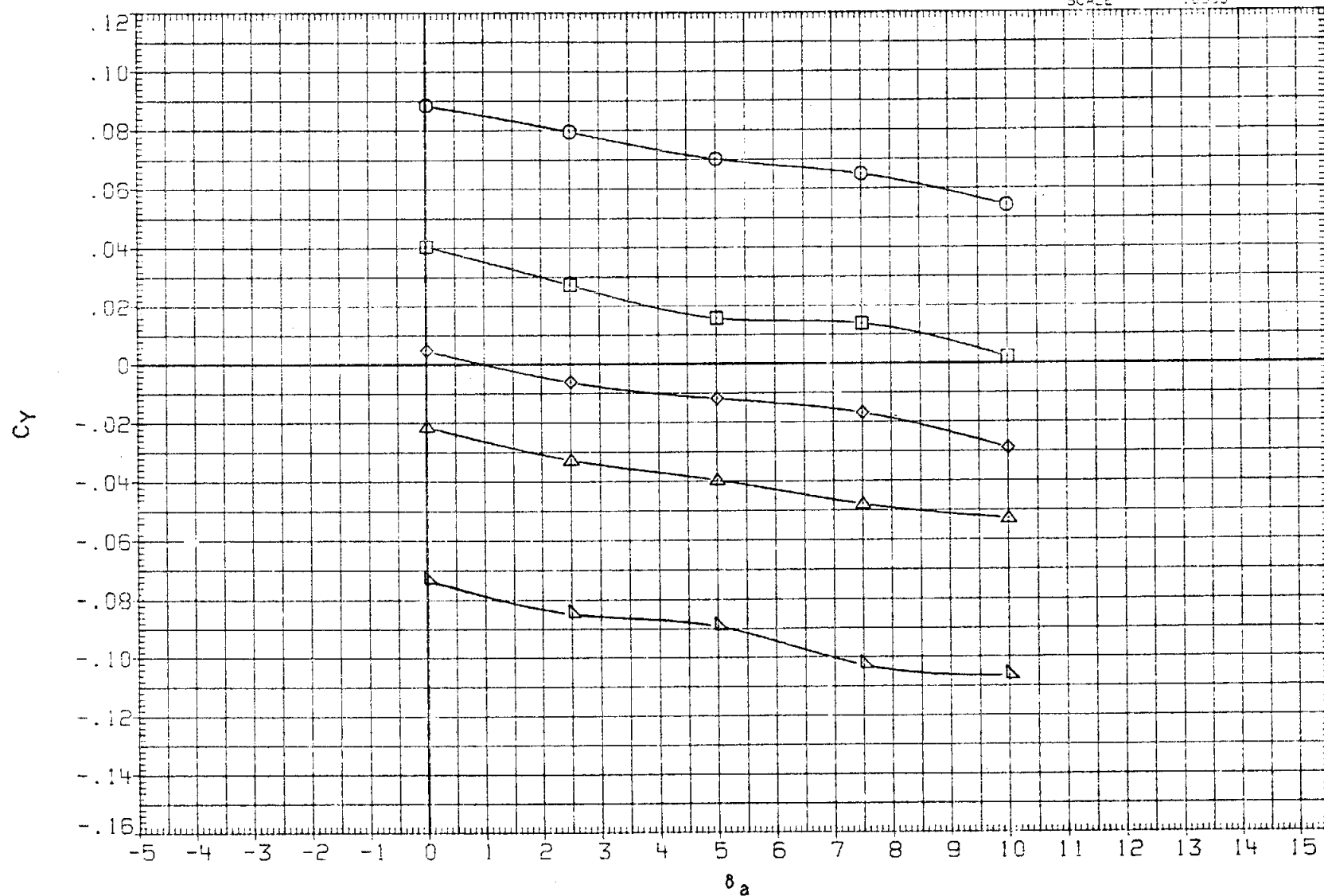


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	BETA	MACH	PARAMETRIC	VALUES
○	-5.000		.900	ALPHA 16.000
□	-2.000	ELEVON	.000	BDFLAP -7.170
◇	.000			
△	2.000			
▽	5.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRF	1076.6800	IN. XO
YMRF	.0000	IN. YO
ZMRF	375.0000	IN. ZO
SCALE	.0300	

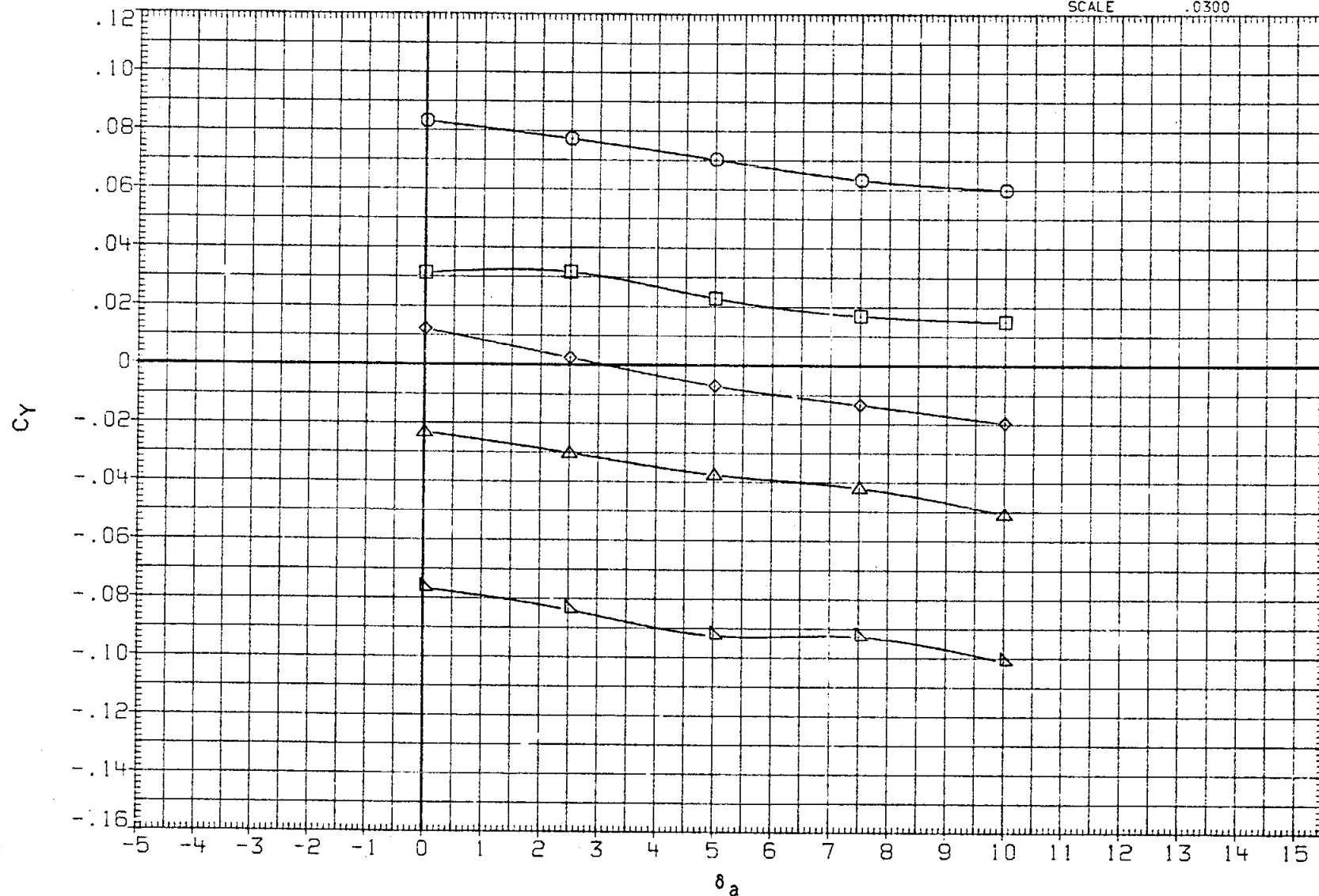


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL

BETA

PARAMETRIC VALUES

00000

-5.000  
-2.000  
.000  
2.000  
5.000MACH  
ELEVON.900  
.000ALPHA  
BDFLAP20.000  
-7.170

REFERENCE INFORMATION

SREF	2680.0000	IN. Y1
LREF	170.8000	IN. Y2
BREF	935.6500	IN. Y3
XMPP	1076.6500	IN. Y4
YMPP	.0000	IN. Y5
ZMPP	375.0000	IN. Y6
SCALE	.0300	

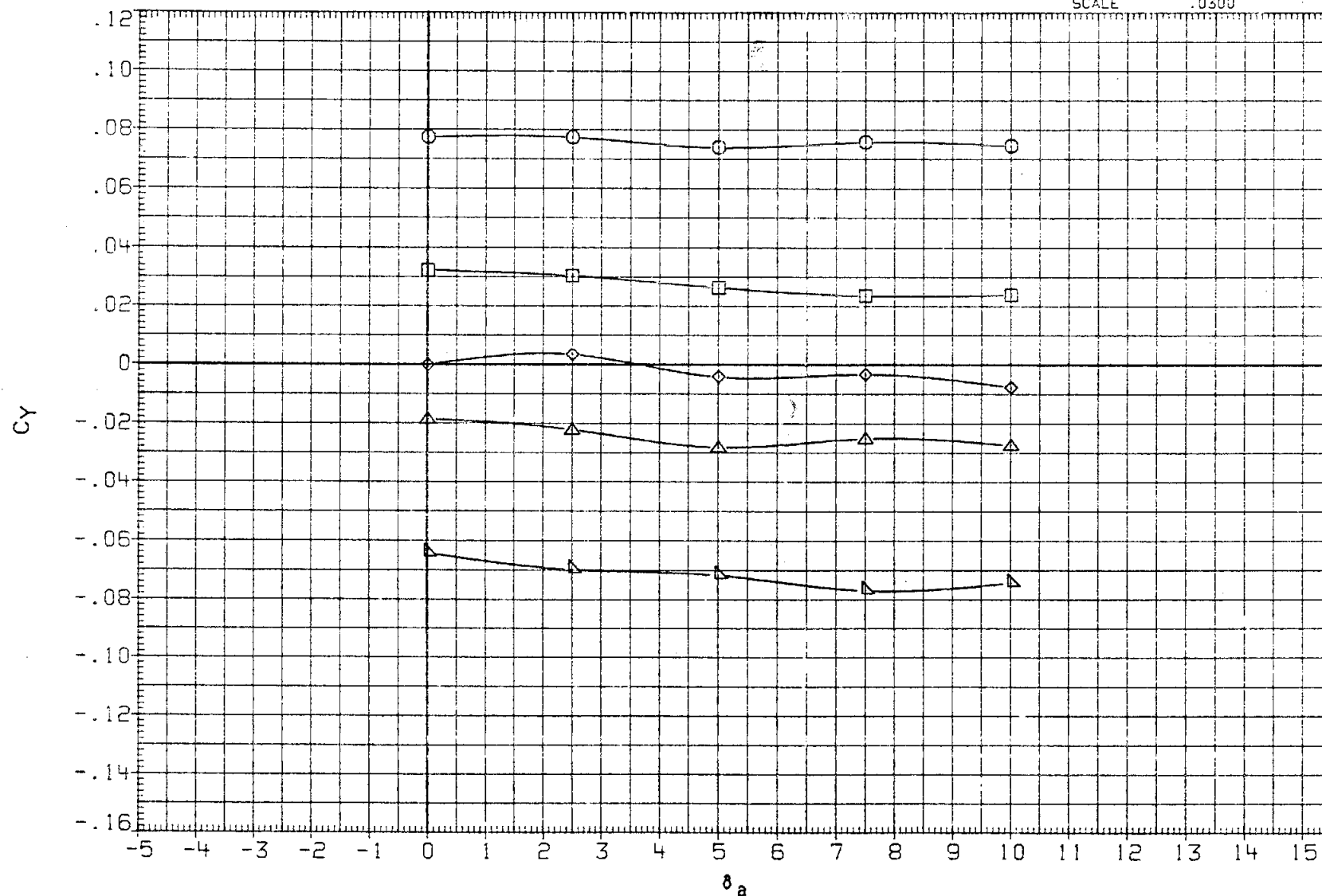


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 0A161 ORBITER

SYMBOL	BETA	MACH	PARAMETRIC VALUES	ALPHA	BOFLAP
○	-5.000		1.200	.000	
□	-2.000	ELEVON	.000	-7.170	
◇	.000				
△	2.000				
	5.000				

REFERENCE INFORMATION

SREF	2690.0000	SQ. FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1075.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

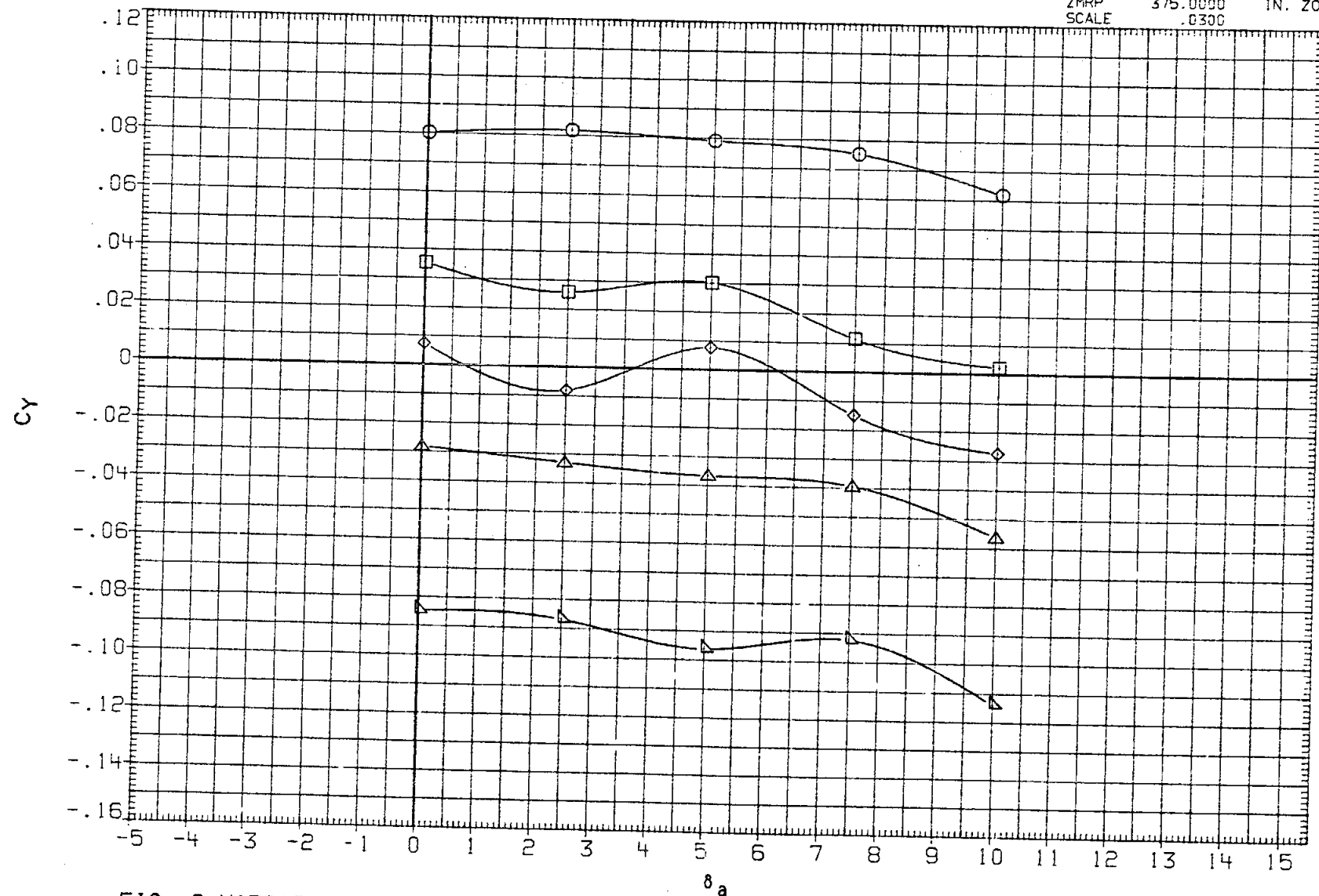


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL

BETA

PARAMETRIC VALUES

○  
 □  
 ◇  
 △  
 ▽

-5.000  
 -2.000  
 .000  
 2.000  
 5.000

MACH  
 ELEVON

1.200  
 .000

ALPHA  
 BDFLAP

4.000  
 -7.170

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6500	IN.
XMRP	1076.6800	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

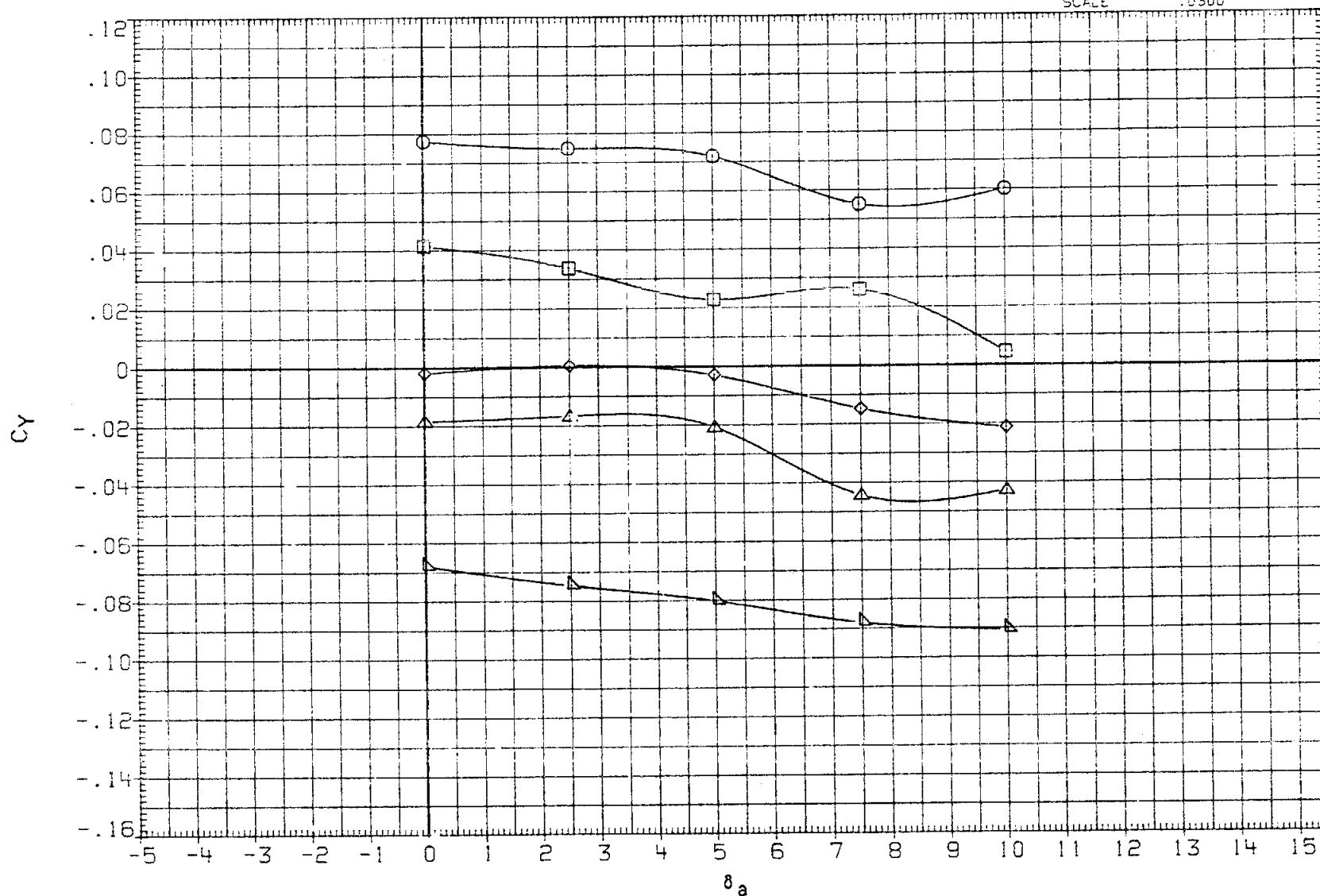


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 0A161 ORBITER

SYMBOL	BETA	MACH	PARAMETRIC VALUES	ALPHA	8.000
○	-5.000	ELEVON	1.200	BDFLAP	-7.170
□	-2.000				
◇	.000				
△	2.000				
▽	5.000				

REFERENCE INFORMATION

SREF	2690.0000	SQ. FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

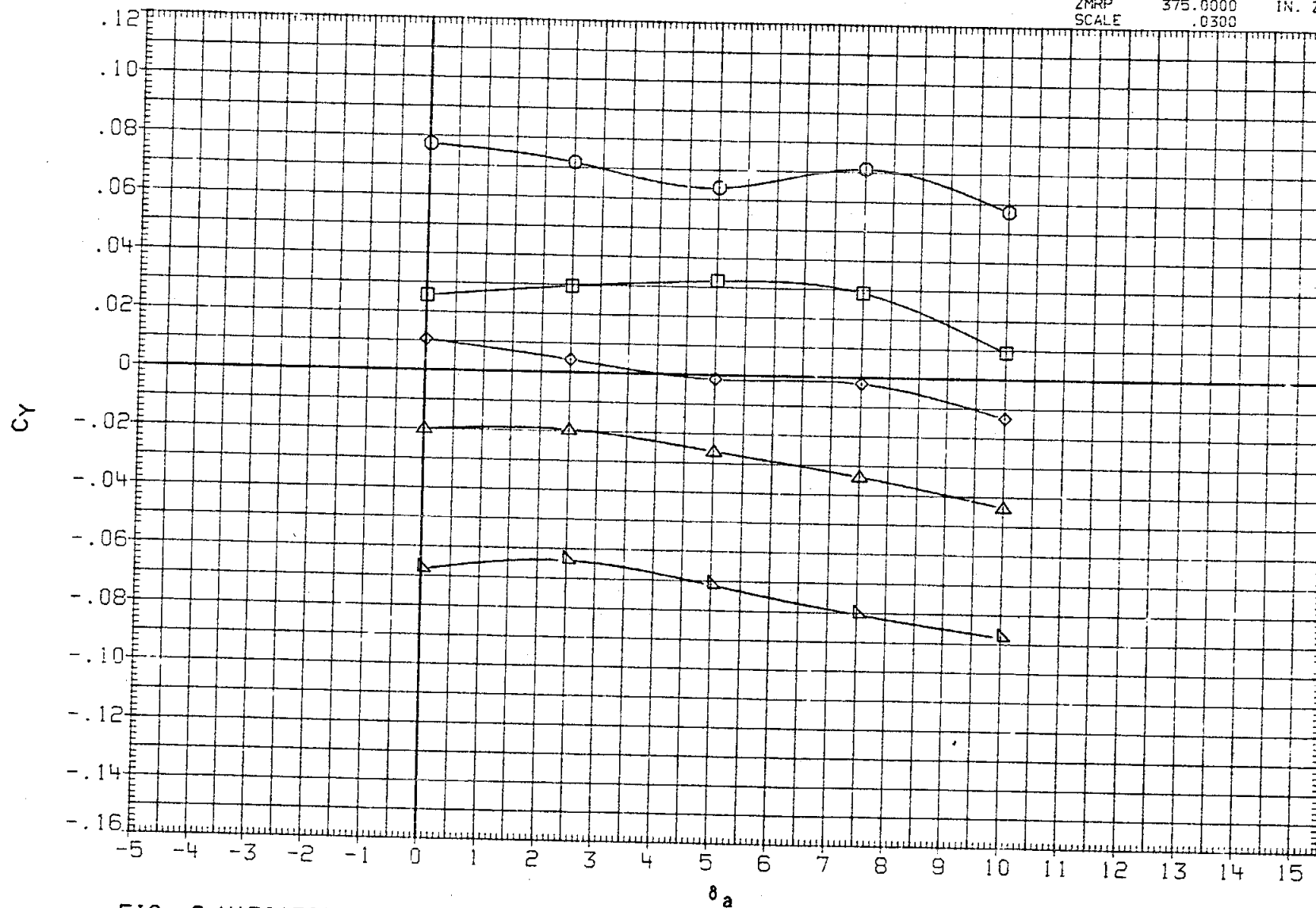


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL

BETA

PARAMETRIC VALUES

○  
□  
◇  
△  
▽

-5.000  
-2.000  
-1.000  
2.000  
5.000

MACH  
ELEVON

1.200  
1.000

ALPHA  
BDFLAP

12.000  
-7.170

REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6500 IN.  
XMPP 1076.6800 IN. XC  
YMPP .0000 IN. YO  
ZMPP 375.0000 IN. ZO  
SCALE .0390

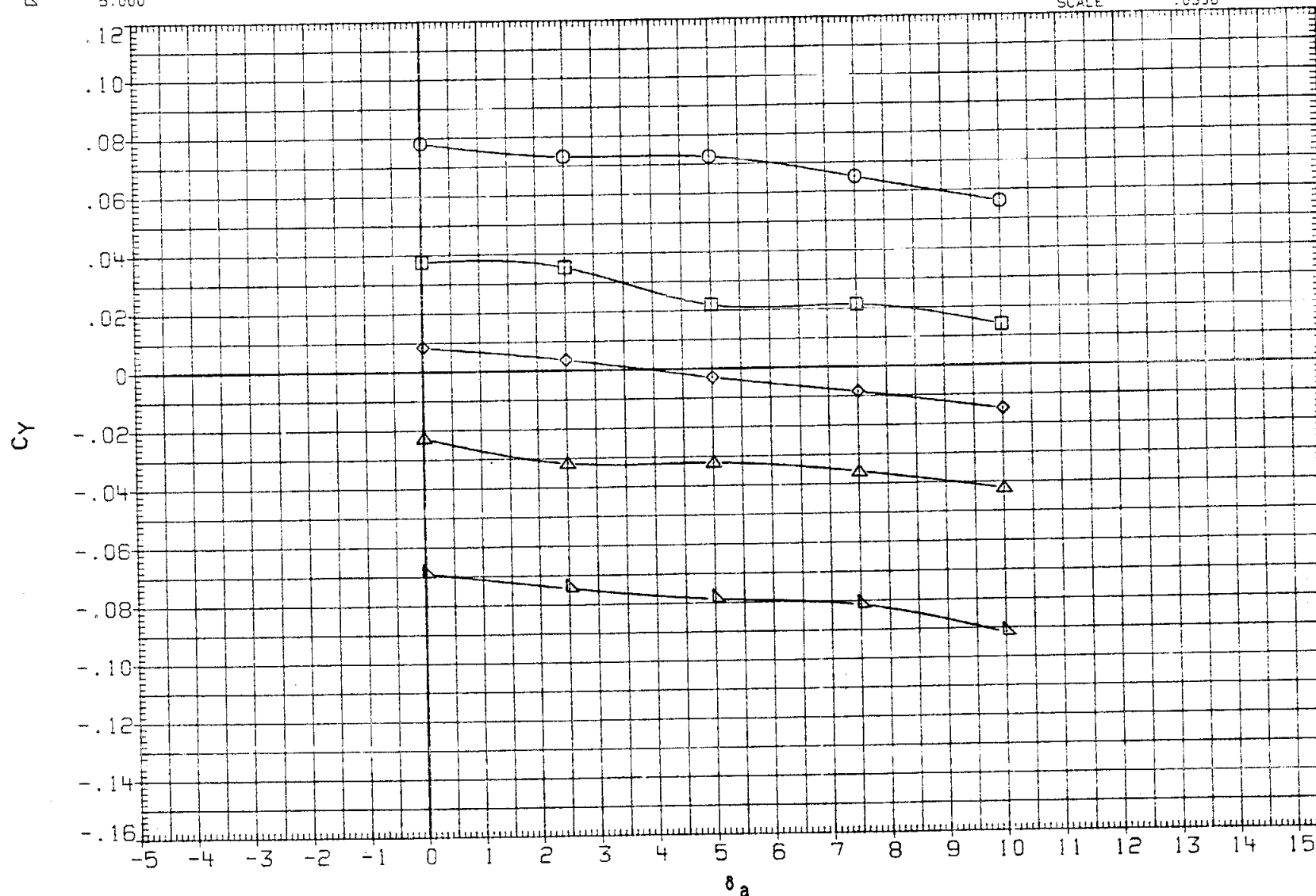


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON



(PE7813) ARC 11-97-87-094 0A161 ORBITER

SYMBOL	BETA		PARAMETRIC VALUES		
○	-5.000	MACH	1.200	ALPHA	16.000
□	-2.000	ELEVON	.000	BDFLAP	-7.170
◇	.000				
△	2.000				
▽	5.000				

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

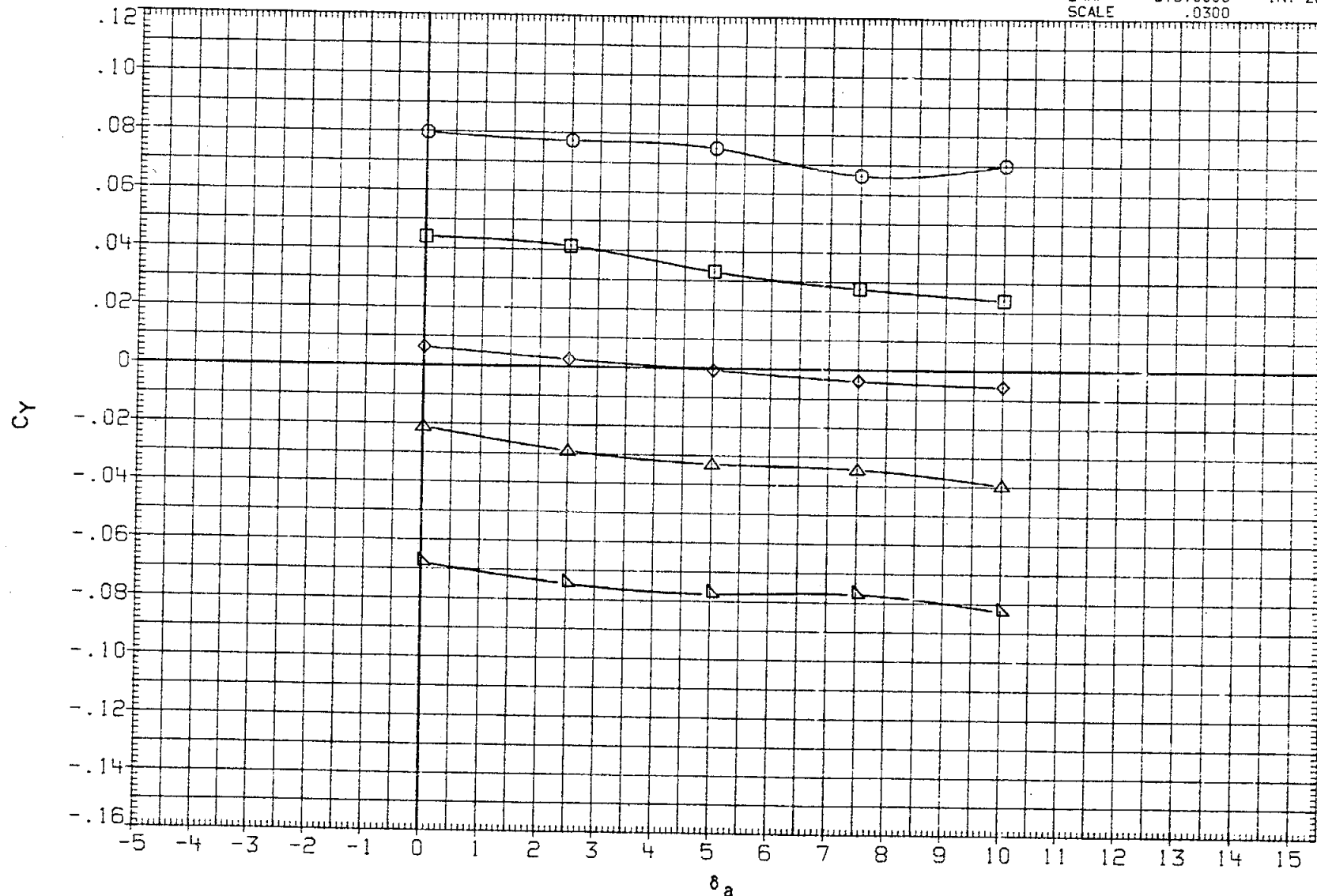


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL		PARAMETRIC VALUES			
BETA		MACH	1.200	ALPHA	20.000
-5.000		ELEVON	1.000	BDFLAP	-7.170
-2.000					
0.000					
2.000					
5.000					

REFERENCE INFORMATION		
SREF	2690.0000	SO. FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XC
YMRP	.0000	IN. YC
ZMRP	375.0000	IN. ZC
SCALE	.0000	

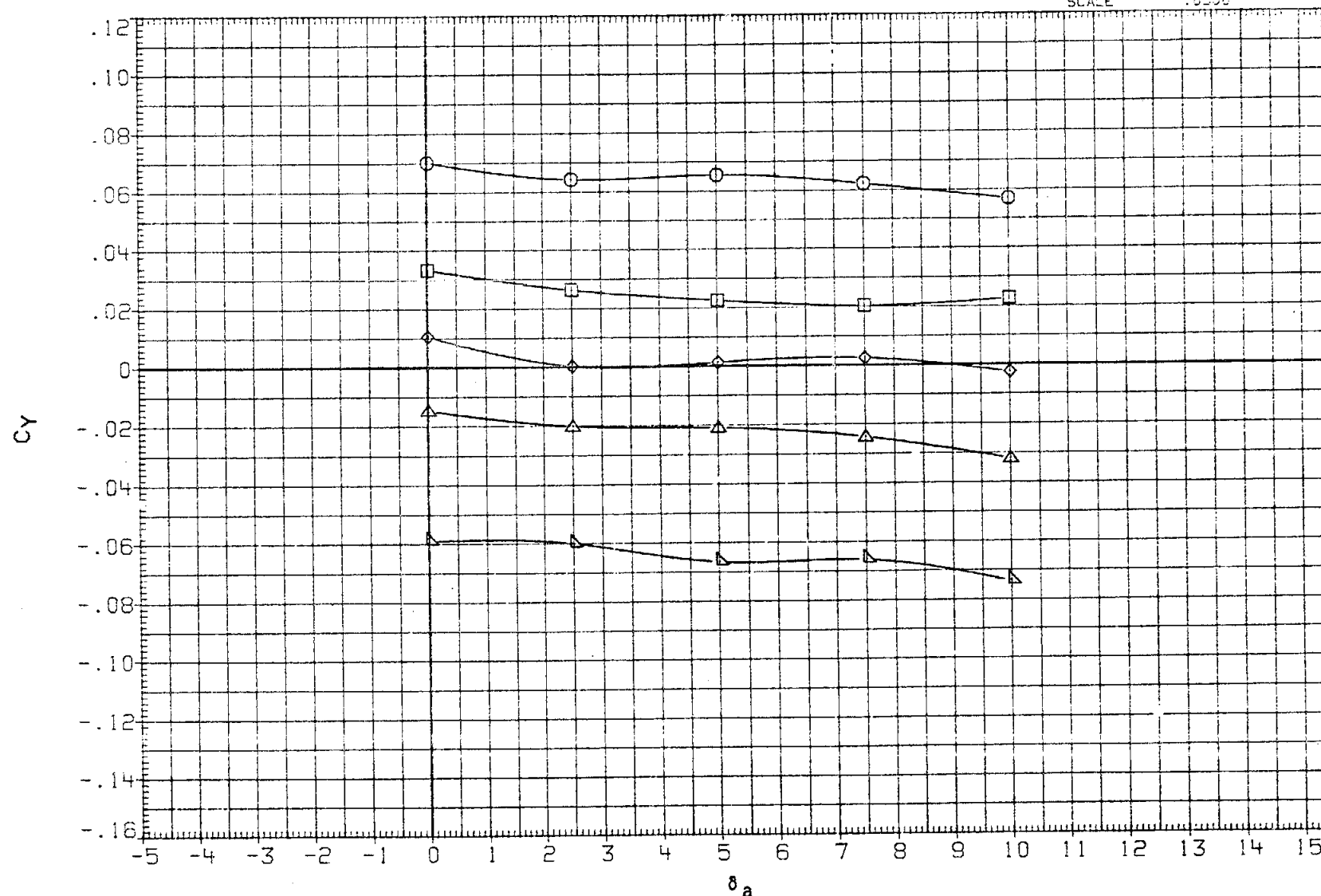


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 0A161 ORBITER

SYMBOL	BETA	PARAMETRIC VALUES			
○	-5.000	MACH	1.400	ALPHA	.000
□	-2.000	ELEVON	.000	BDFLAP	-7.170
◇	.000				
△	2.000				
▽	5.000				

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
XMRF	1076.6800	IN. XO
YMRF	.0000	IN. YO
ZMRF	375.0000	IN. ZO
SCALE	.0330	

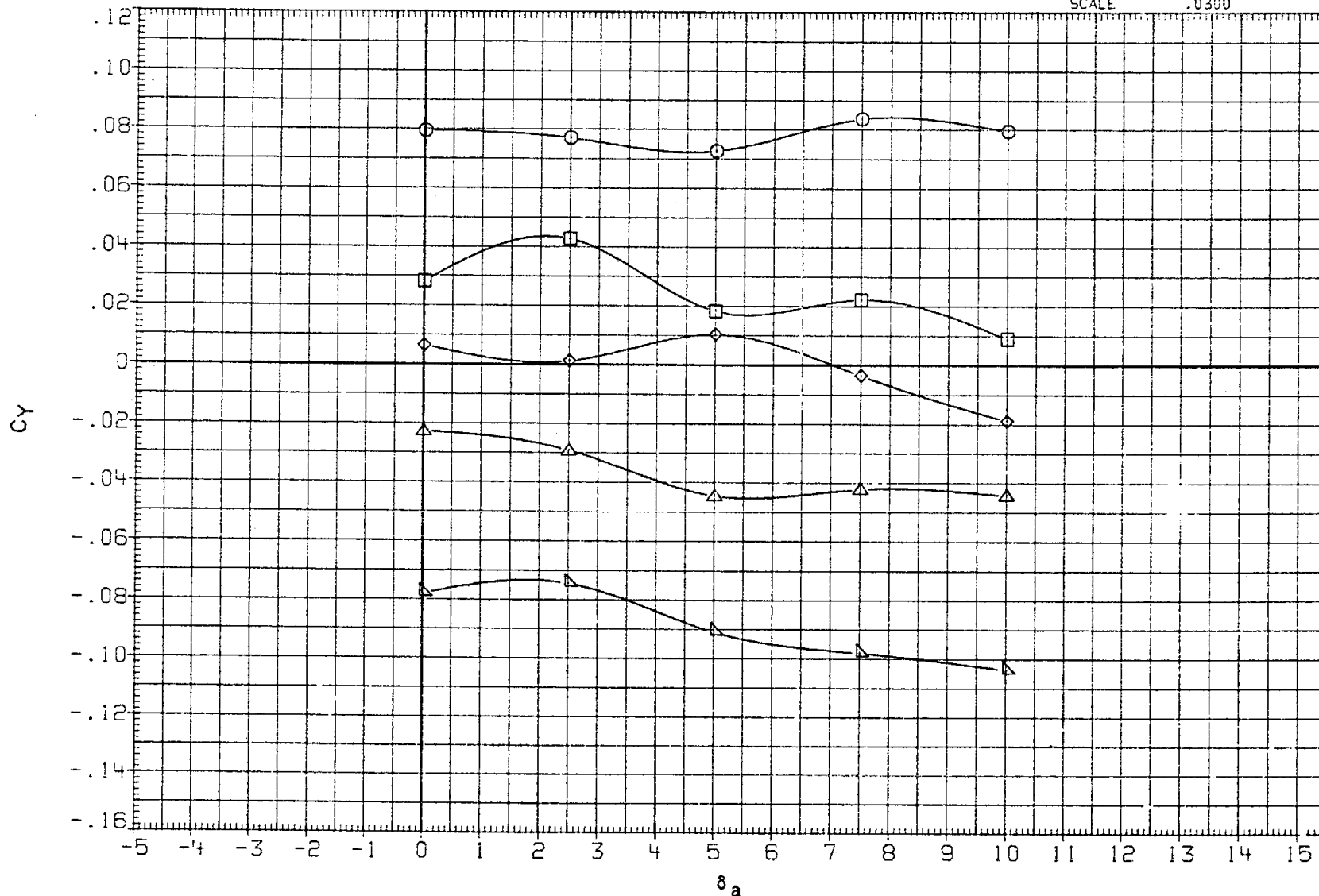


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL	BETA	MACH	PARAMETRIC VALUES	ALPHA	BDCLAP
○	-5.000	1.400		4.000	
□	-2.000	1.000		-7.170	
◇	0.000				
△	2.000				
▽	5.000				

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	475.8000	IN.
BREF	935.6900	IN.
XMPP	1076.6800	IN. XO
YMPP	0.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

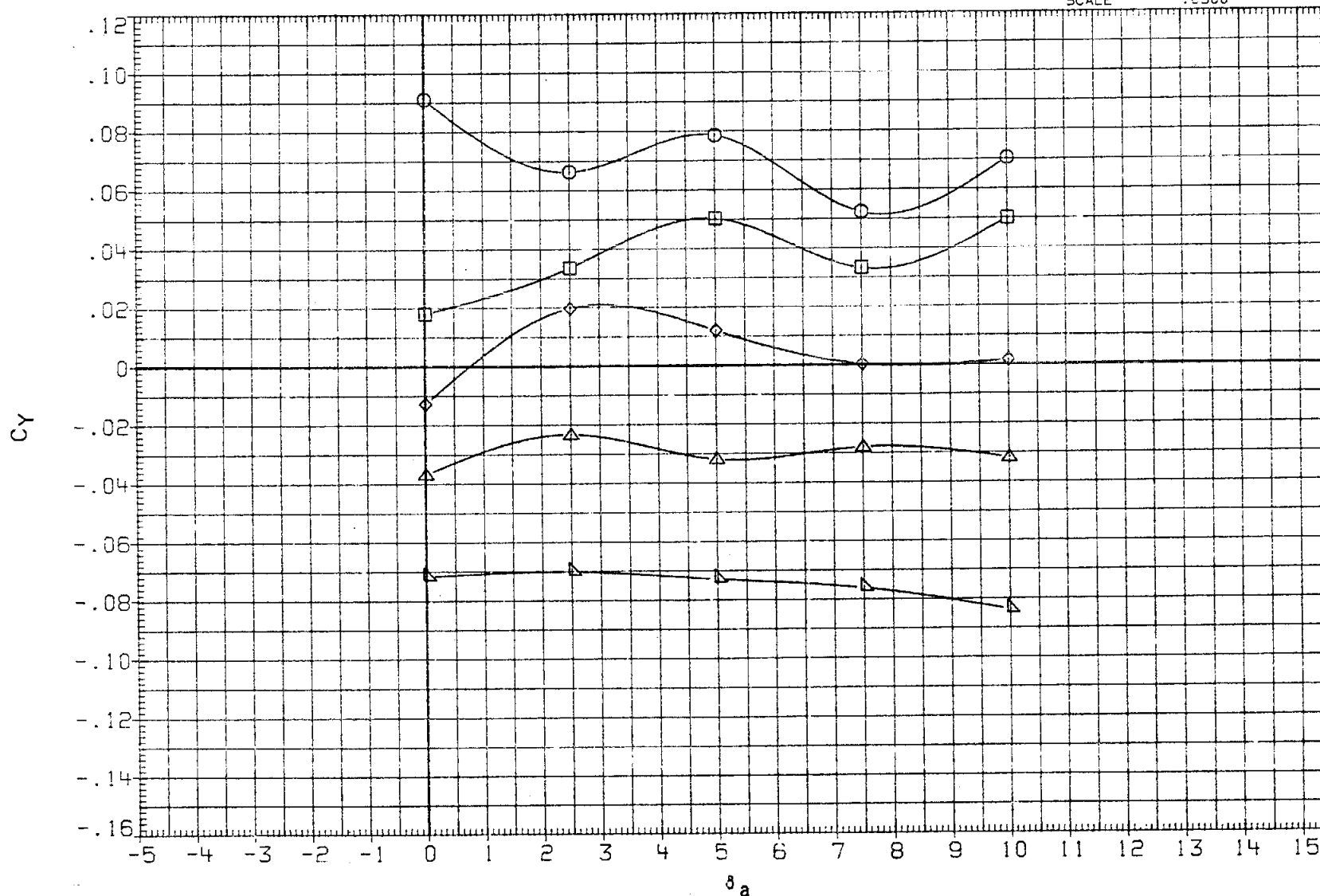


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 OA161 ORBITER

SYMBOL

BETA

PARAMETRIC VALUES

-5.000

MACH

1.400

ALPHA

8.000

-2.000

ELEVON

.000

BOFLAP

-7.170

.000

2.000

5.000

REFERENCE INFORMATION

SREF 2690.0000 SQ. FT.

LREF 474.8000 IN.

BREF 936.6800 IN.

XMRP 1076.6800 IN. XO

YMRP .0000 IN. YO

ZMRP 375.0000 IN. ZO

SCALE .0390

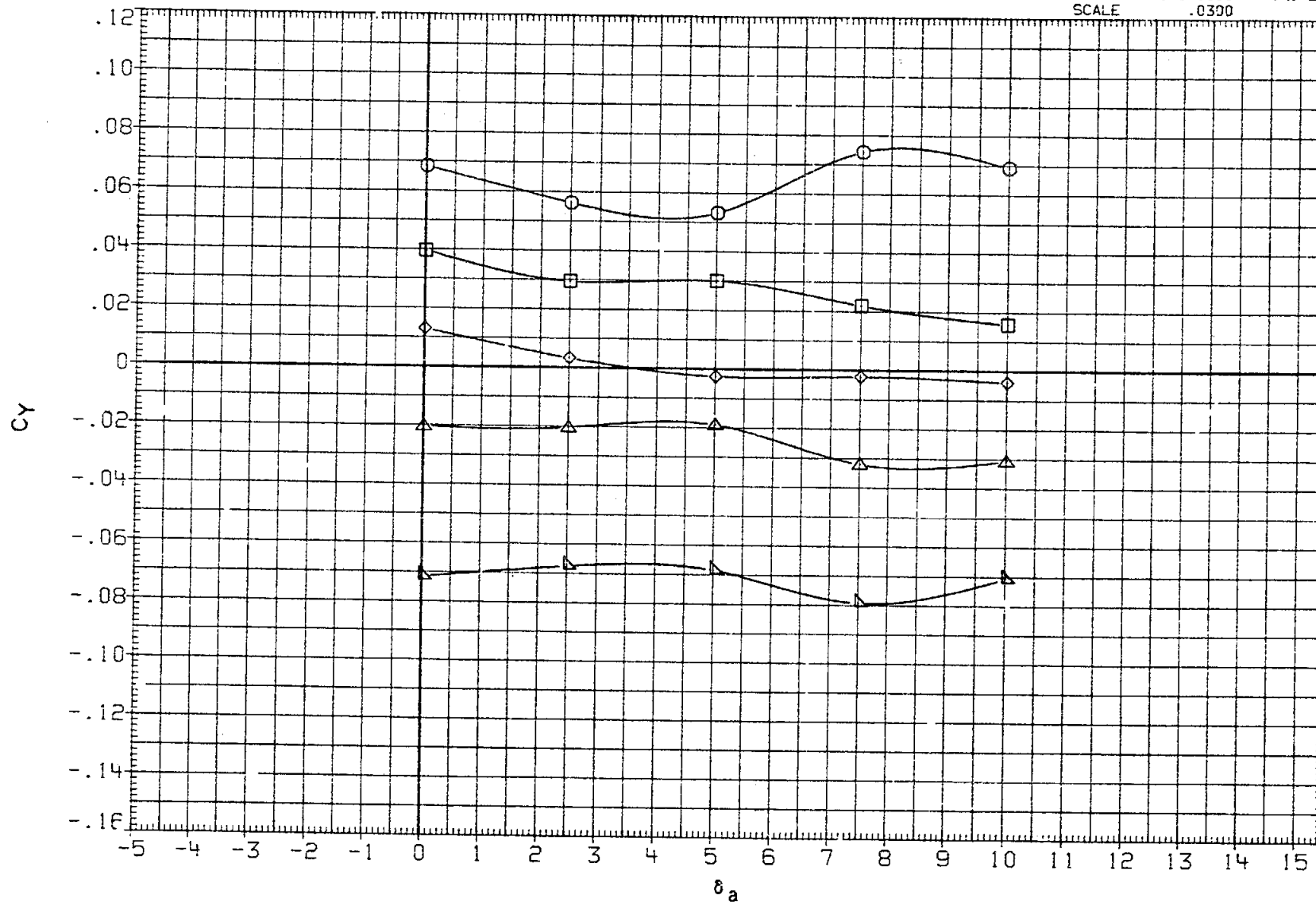


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL

BETA

PARAMETRIC VALUES

-5.000

MACH

1.400

ALPHA

12.000

-2.000

ELEVON

.000

BDFLAP

-7.170

.000

2.000

5.000

REFERENCE INFORMATION

SREF 2690.0000

SQ.FT.

LREF 474.8000

IN.

BREF 936.6800

IN.

XMRP 1076.6800

IN. XO

YMRP .0000

IN. YO

ZMRP 375.0000

IN. ZO

SCALE .0300

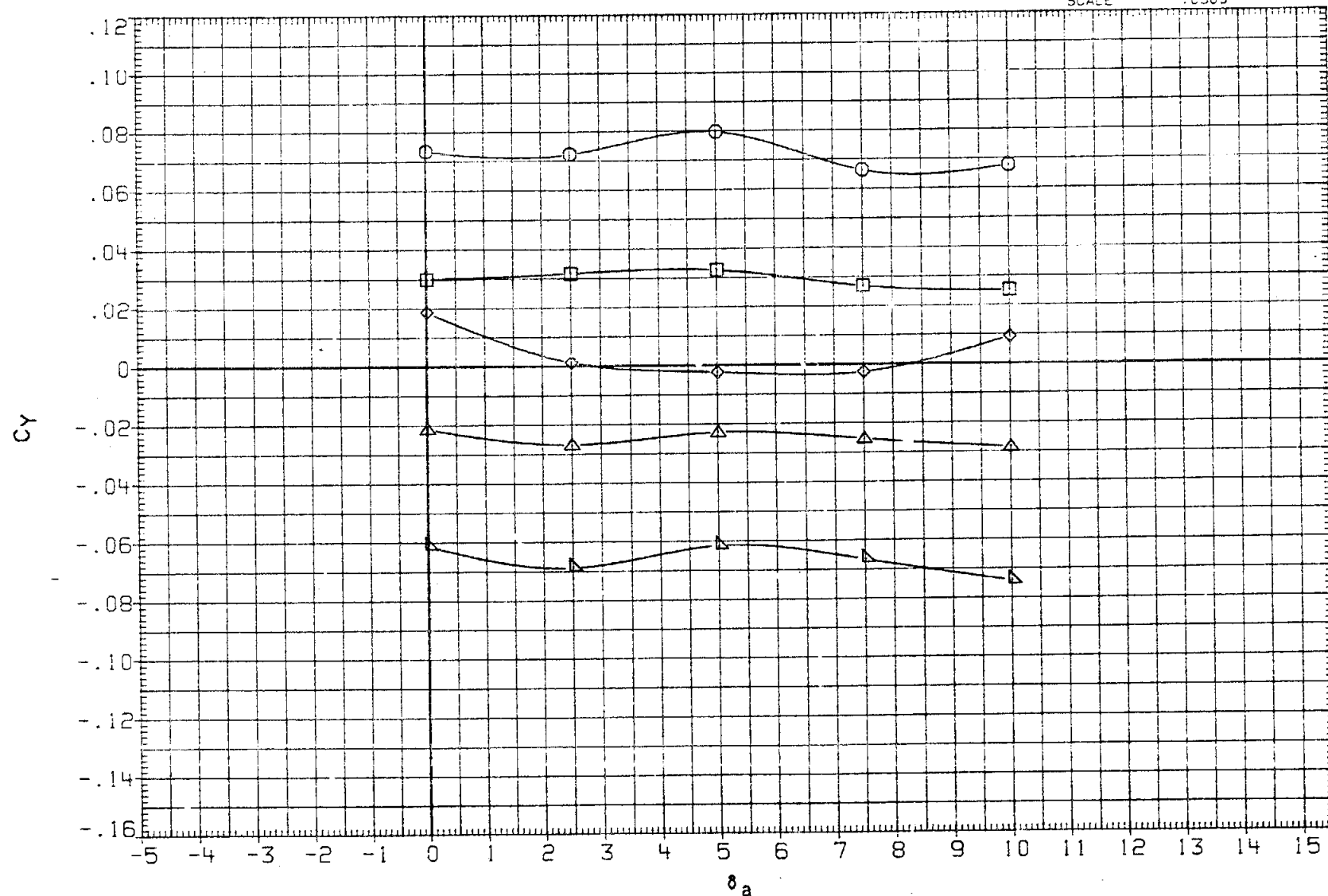


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 0A161 ORBITER

SYMBOL	BETA	MACH	ELEVON	PARAMETRIC VALUES	ALPHA	BDFLAP
○	-5.000	1.400	15.000			
□	-2.000	.000	-7.170			
◇	.000					
△	2.000					
▽	5.000					

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

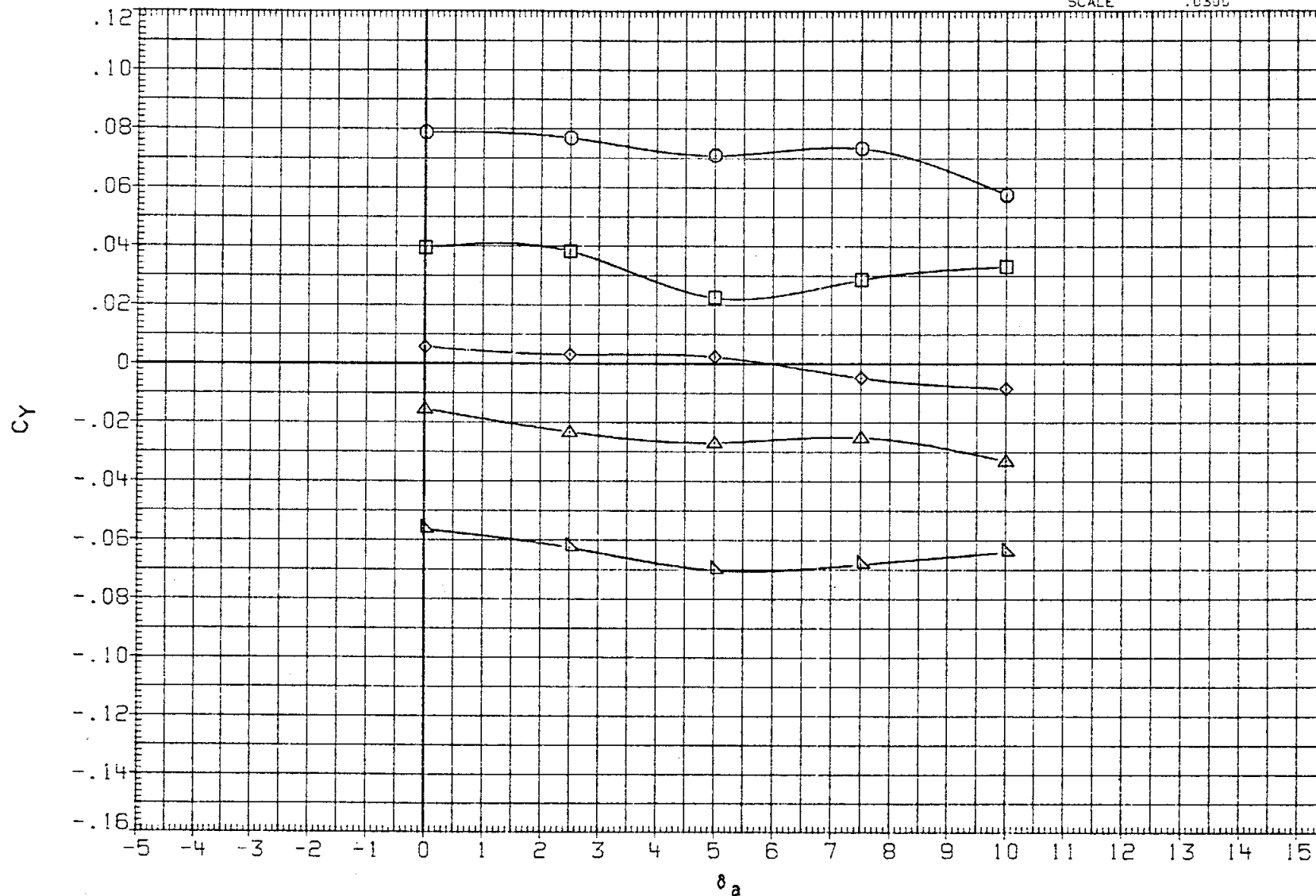


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL

BETA

PARAMETRIC VALUES

O  
 □  
 ◇  
 △

-5.000  
 -2.000  
 .000  
 2.000  
 5.000

MACH  
 ELEVON

1.400  
 .000

ALPHA  
 BDFLAP

20.000  
 -7.170

REFERENCE INFORMATION

CRF	2690.0000	SQ. FT.
LRP	474.6000	IN.
BRP	936.6900	IN.
XMRP	1076.6800	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

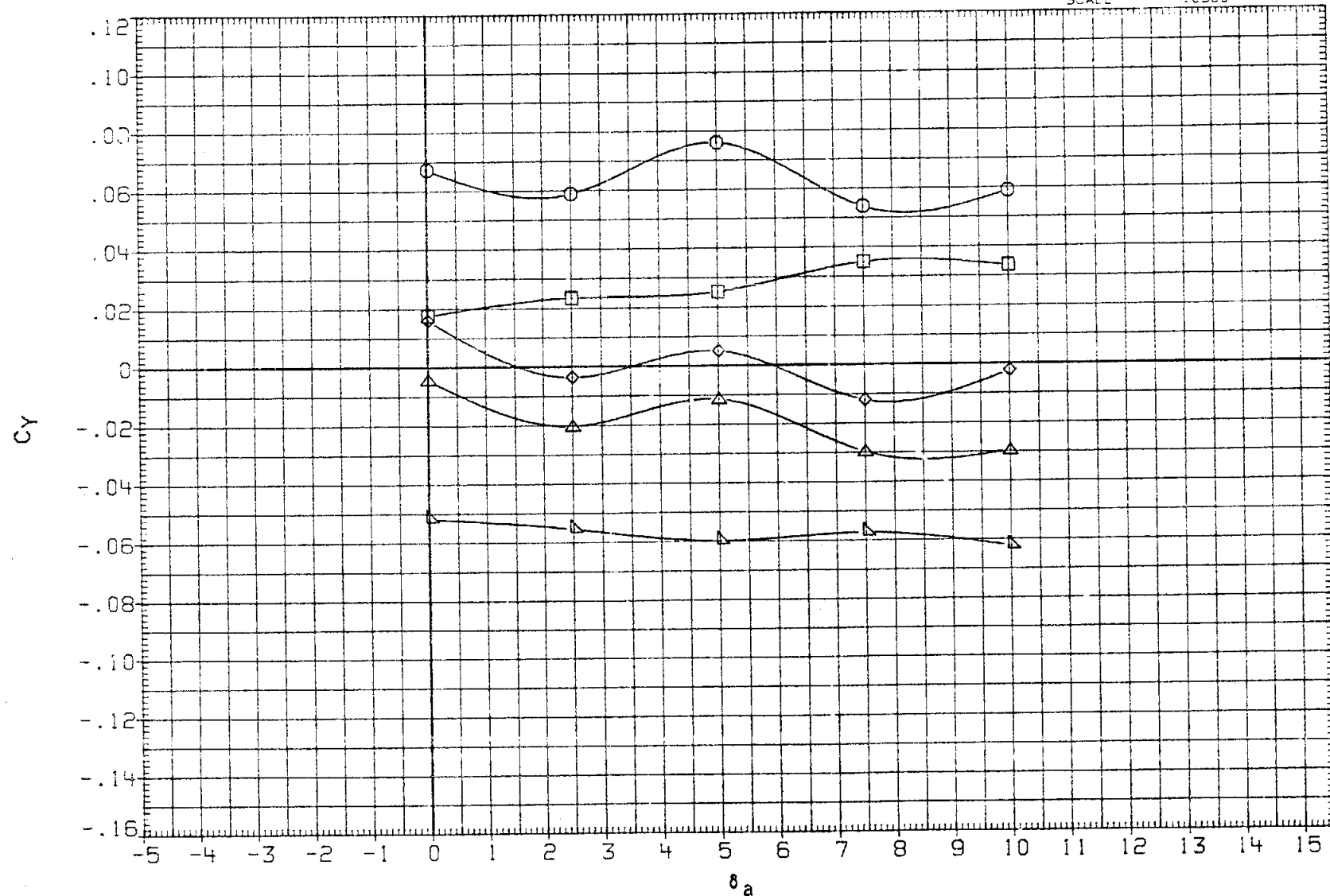


FIG. 2 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON



(PE7813) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	BETA	MACH	PARAMETRIC VALUES	ALPHA	BDFLAP
○	-5.000		.600	.000	
□	-2.000	ELEVON	.000		-7.170
◇	.000				
△	2.000				
▽	5.000				

REFERENCE INFORMATION		
SREF	2590.0000	SU. FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.6330	

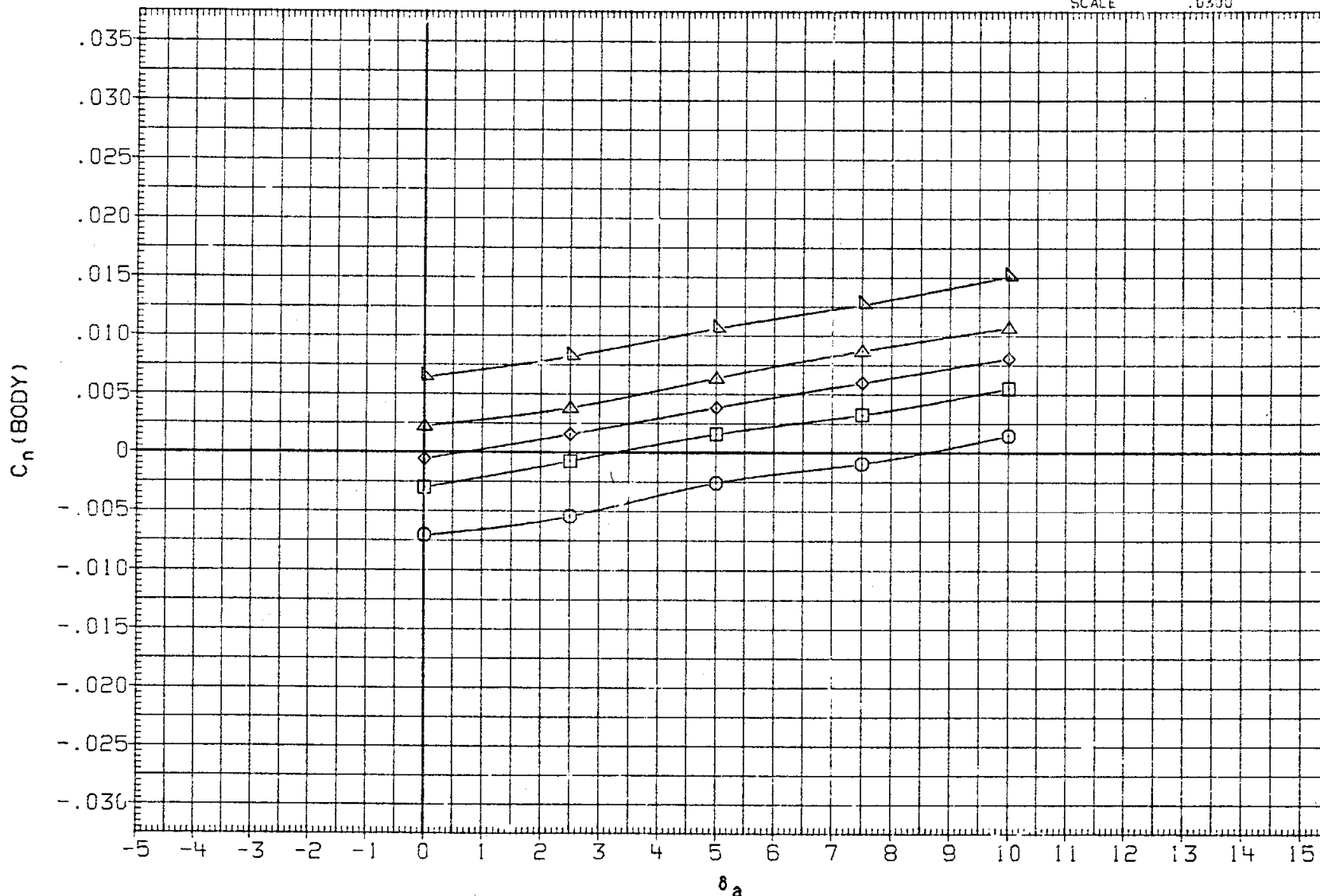


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL

BETA

○  
□  
◇  
△  
▽

-5.000  
-2.000  
.000  
2.000  
5.000

MACH  
ELEVON

PARAMETRIC VALUES

.600  
.000

ALPHA  
BDFLAP

4.000  
-7.170

REFERENCE INFORMATION

SREF	2690.0000	SO. FT.
LREF	474.6000	IN.
BREF	936.6600	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

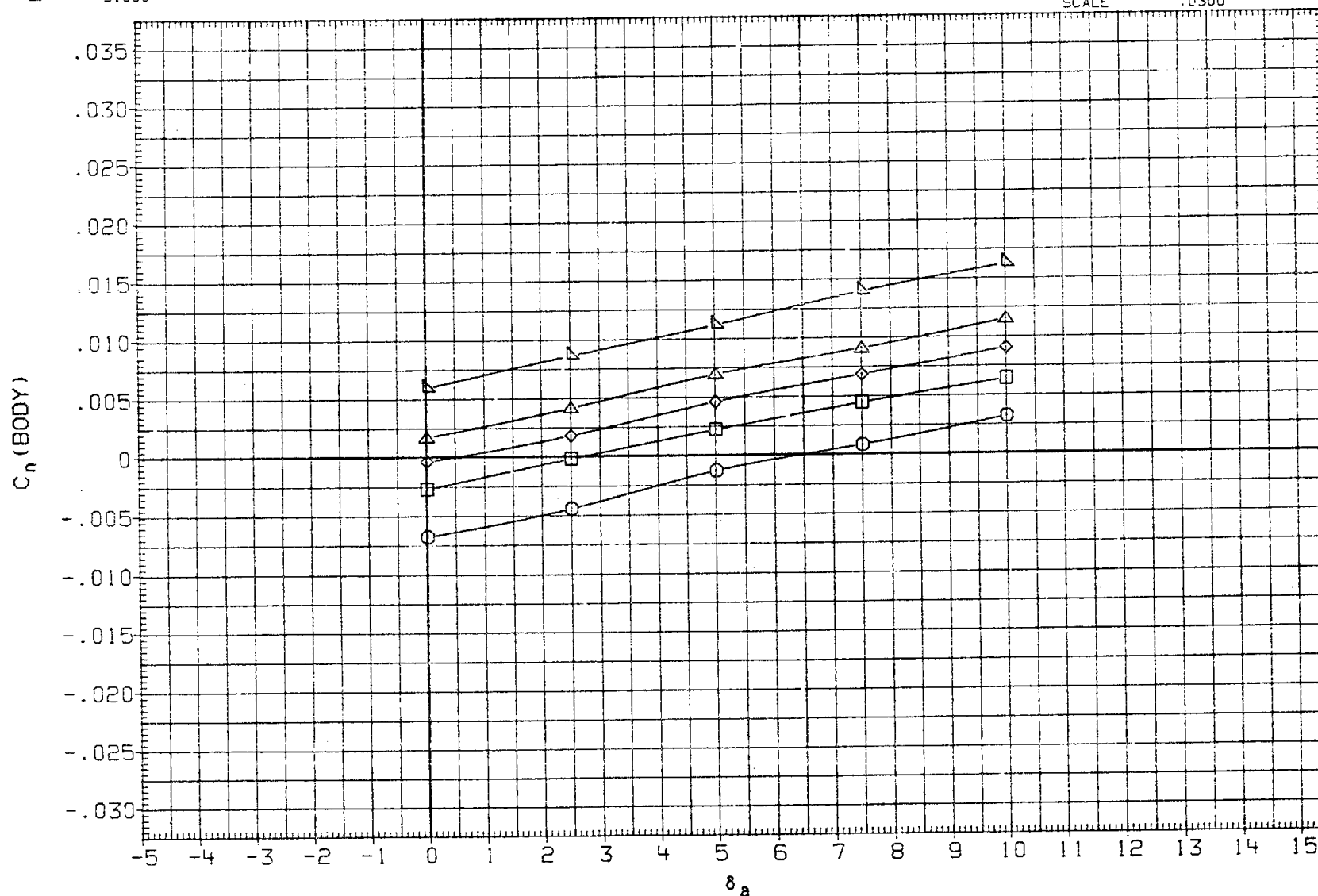


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	BETA	MACH	ELEVON	PARAMETRIC VALUES	ALPHA	BD FLAP
○	-5.000				8.000	
◇	-2.000				-7.170	
□	.000					
△	2.000					
▽	5.000					

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

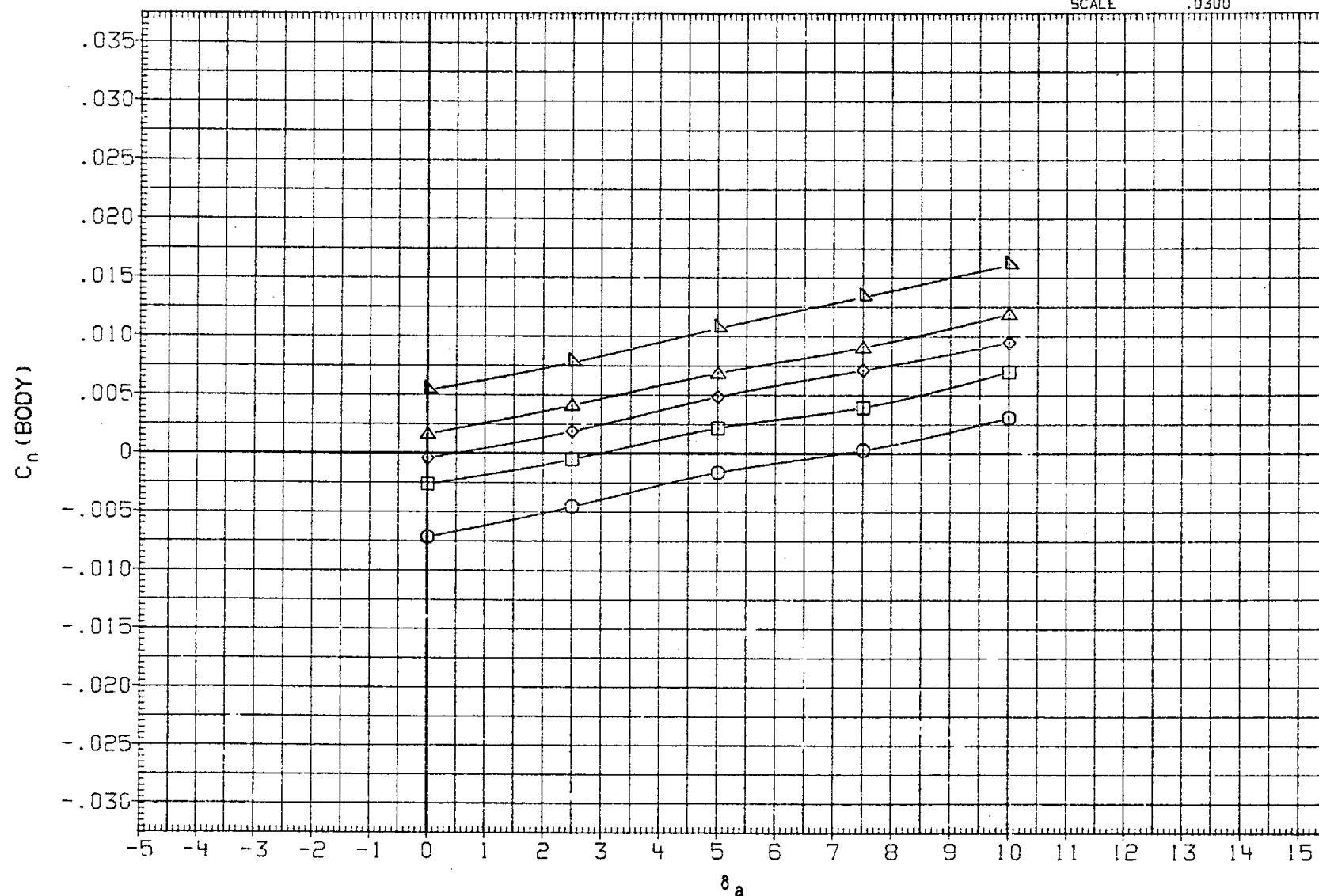


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL	BETA	MACH	PARAMETRIC	VALUES	ALPHA	BDCLAP
○	-5.000		.600		12.000	
□	-2.000	ELEVON	.000		-7.170	
◇	.000					
△	2.000					
▽	5.000					

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	936.5800	IN.
XMRP	1076.5800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

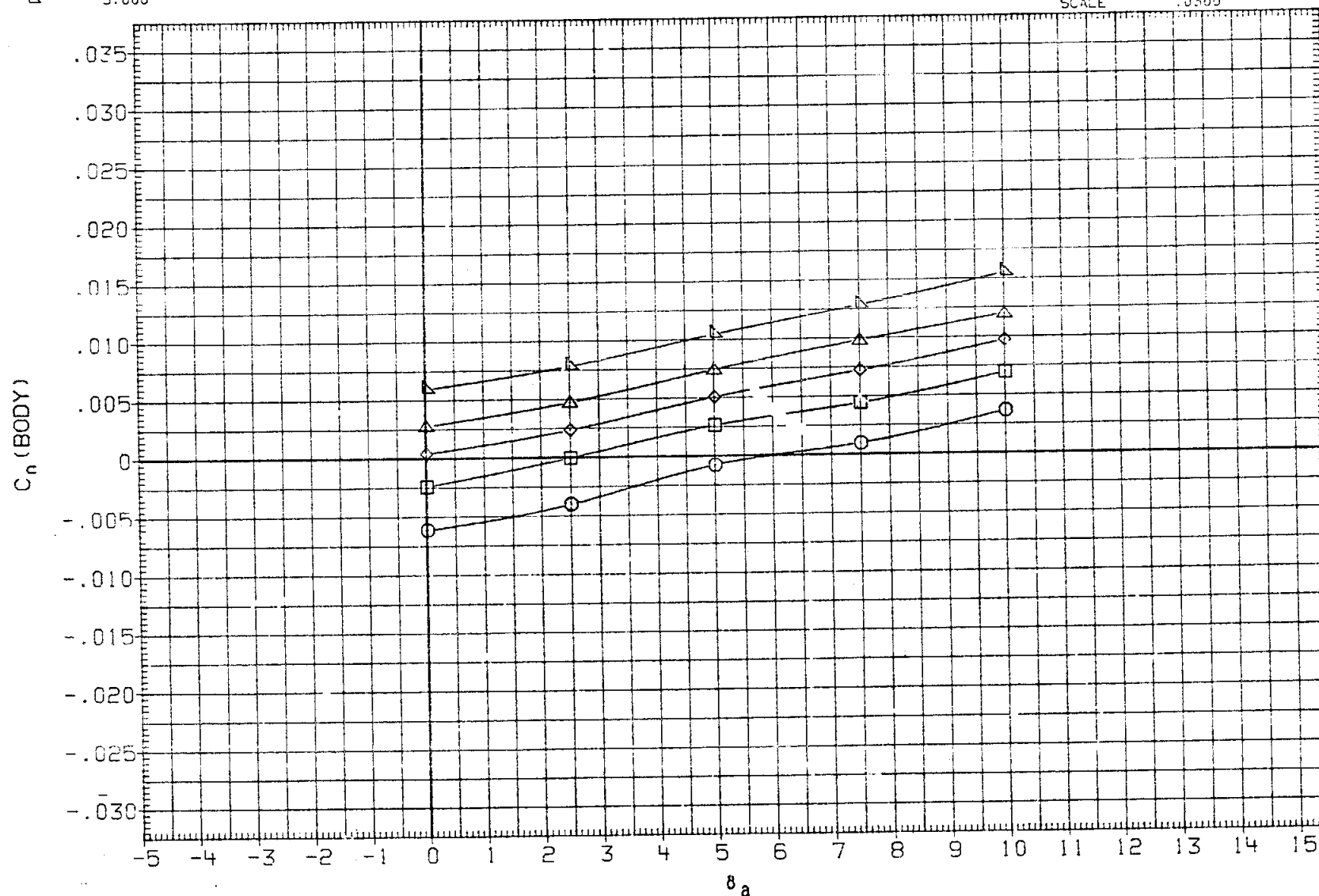


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 OA161 ORBITER

SYMBOL

○  
□  
◇  
△  
▽

BETA

-5.000  
-2.000  
.000  
2.000  
5.000

MACH  
ELEVON

PARAMETRIC VALUES

.600 ALPHA 16.000  
.000 BCFLAP -7.170

REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 935.6900 IN.  
XMRP 1075.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0330

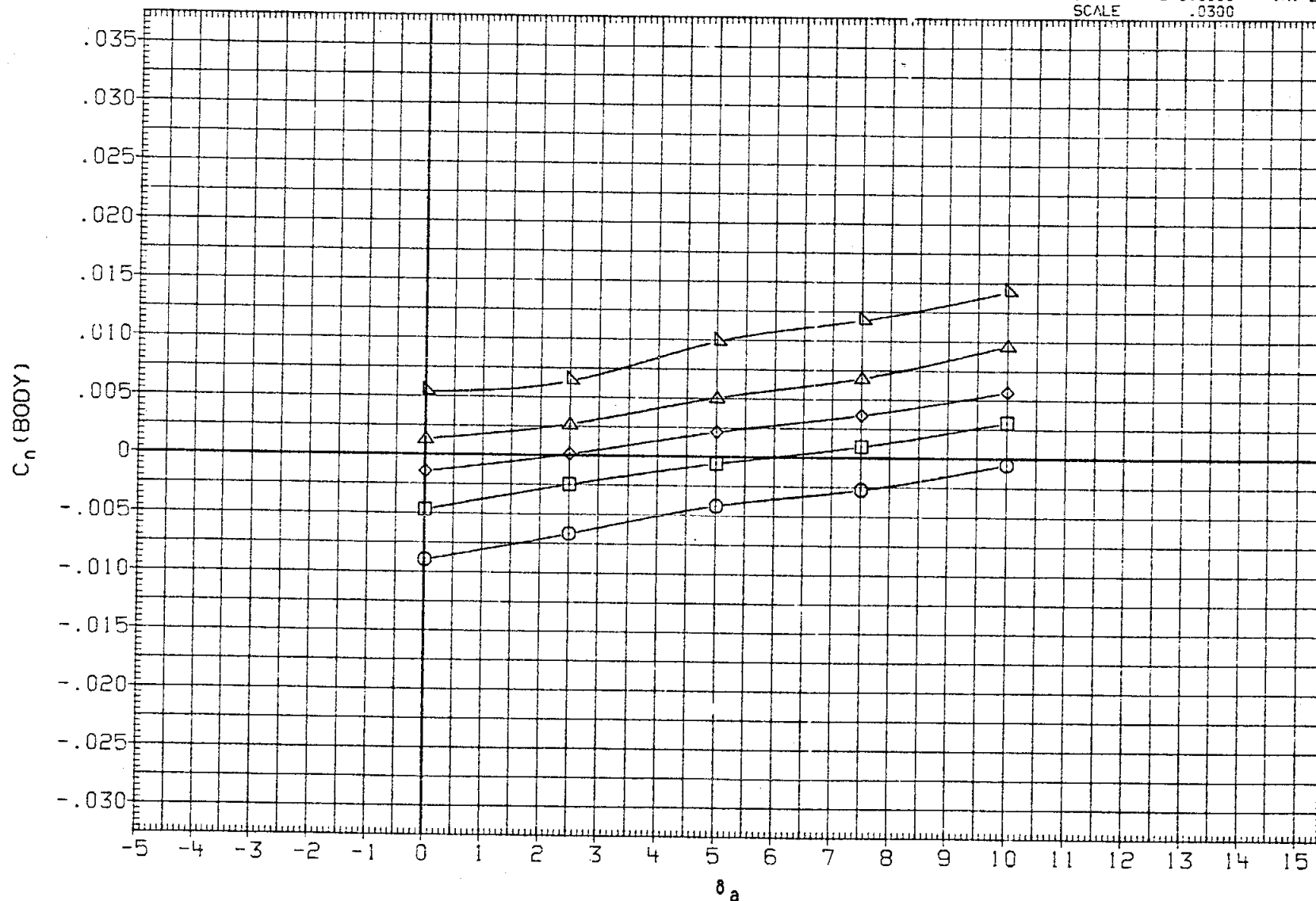


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

PARAMETRIC VALUES	
BETA	-5.000
MACH	.800
ALPHA	80.000
ELEVON	.000
BDFLAP	-7.170
	.000
	2.000
	5.000

REFERENCE INFORMATION		
SREF	2690.0000	50. FT.
LREF	474.0000	IN.
BREF	935.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

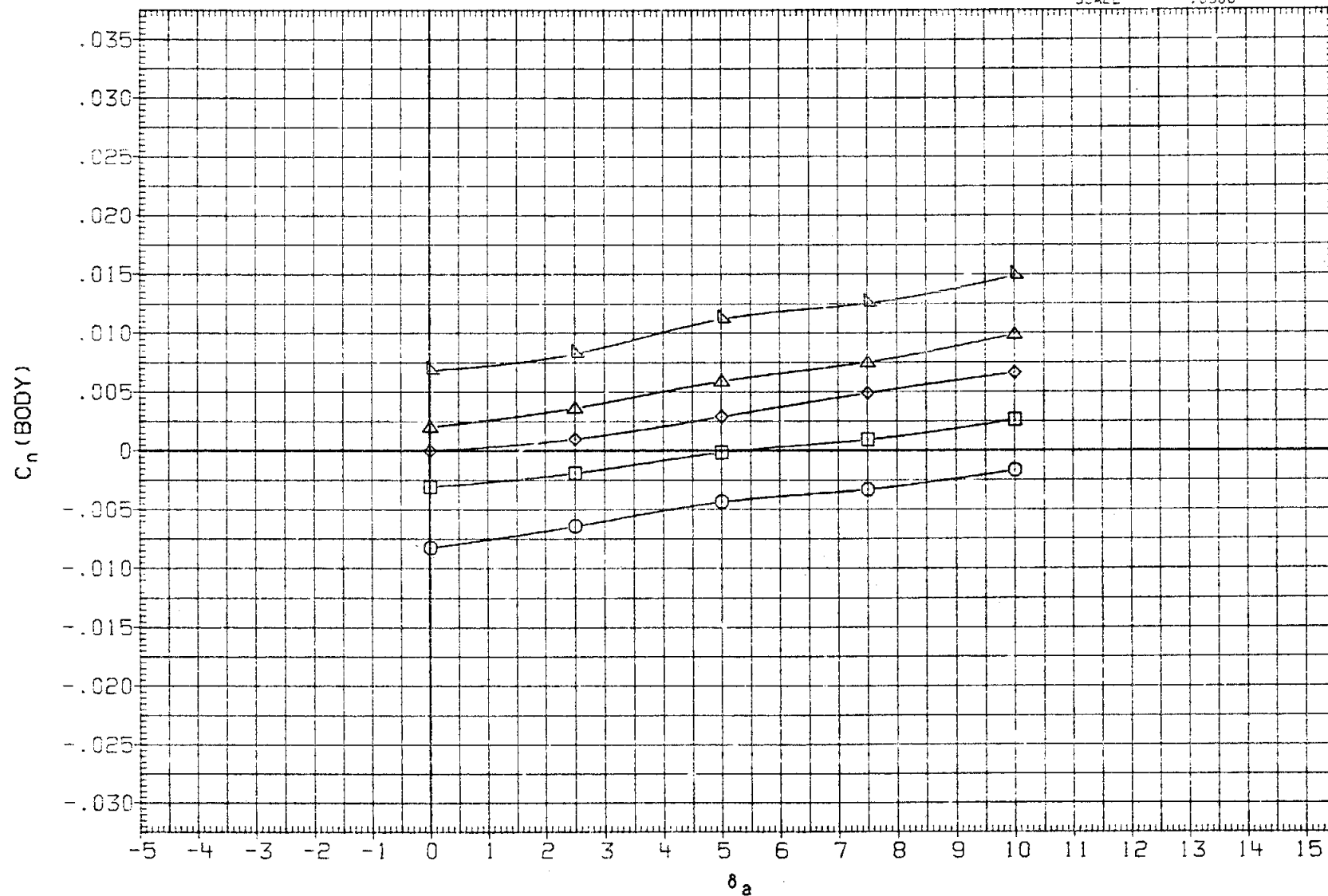


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(DE7813) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	BETA	MACH	PARAMETRIC VALUES	
□	-5.000	ELEVON	.900	ALPHA .000
◇	-2.000		.000	BOFLAP -7.170
△	.000			
▽	2.000			
	5.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

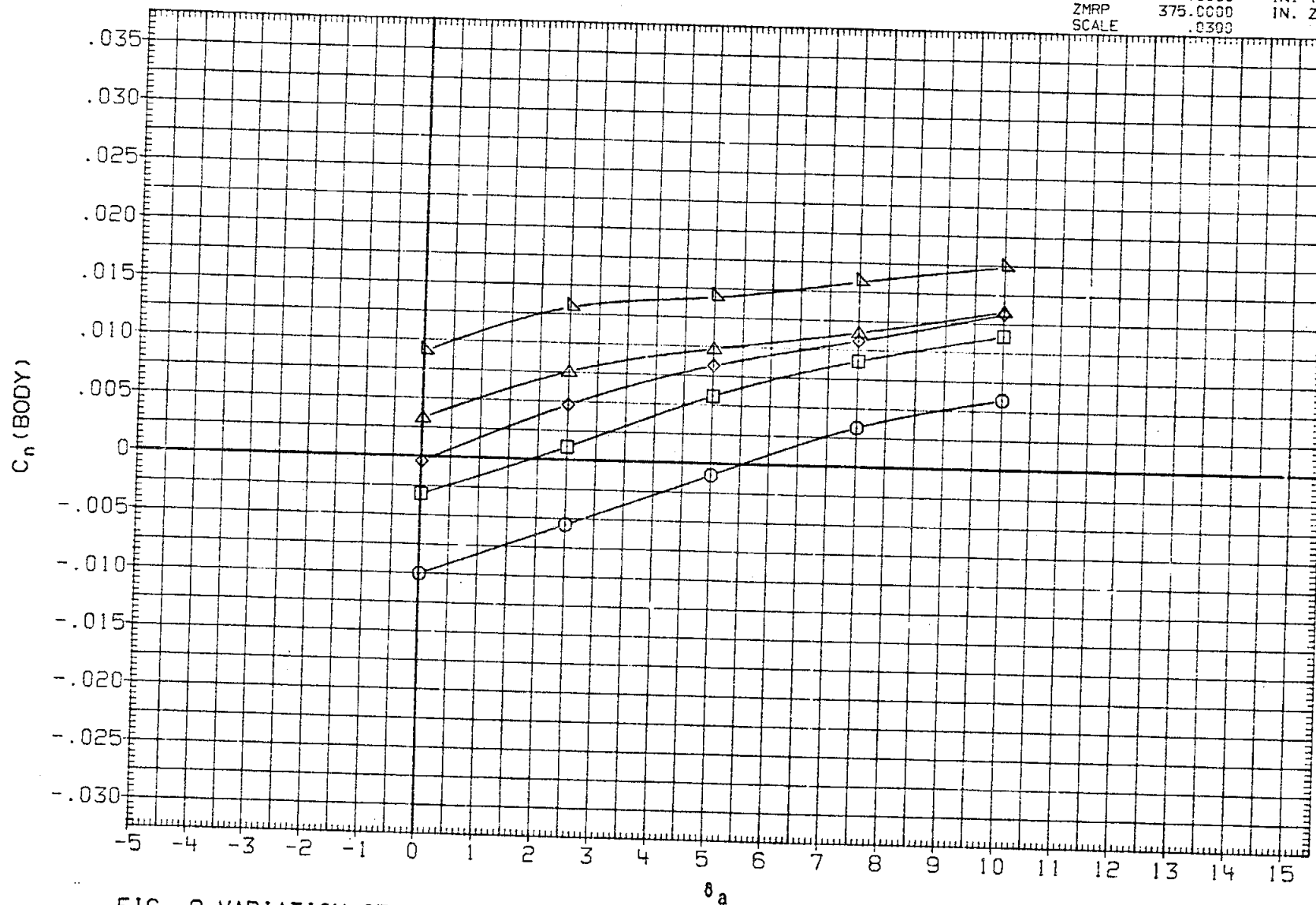


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL	BETA		PARAMETRIC VALUES			
	BETA	MACH	ELEVON	.900	ALPHA	4.000
○	-5.000				BDFLAP	-7.170
□	-2.000					
◇	.000					
△	2.000					
	5.000					

REFERENCE INFORMATION		
SREF	2691.0000	50. FT.
LREF	474.8000	IN.
BREF	936.6600	IN.
XMPP	1076.6800	IN. X0
YMPP	.0000	IN. Y0
ZMPP	375.0000	IN. Z0
SCALE	.0320	

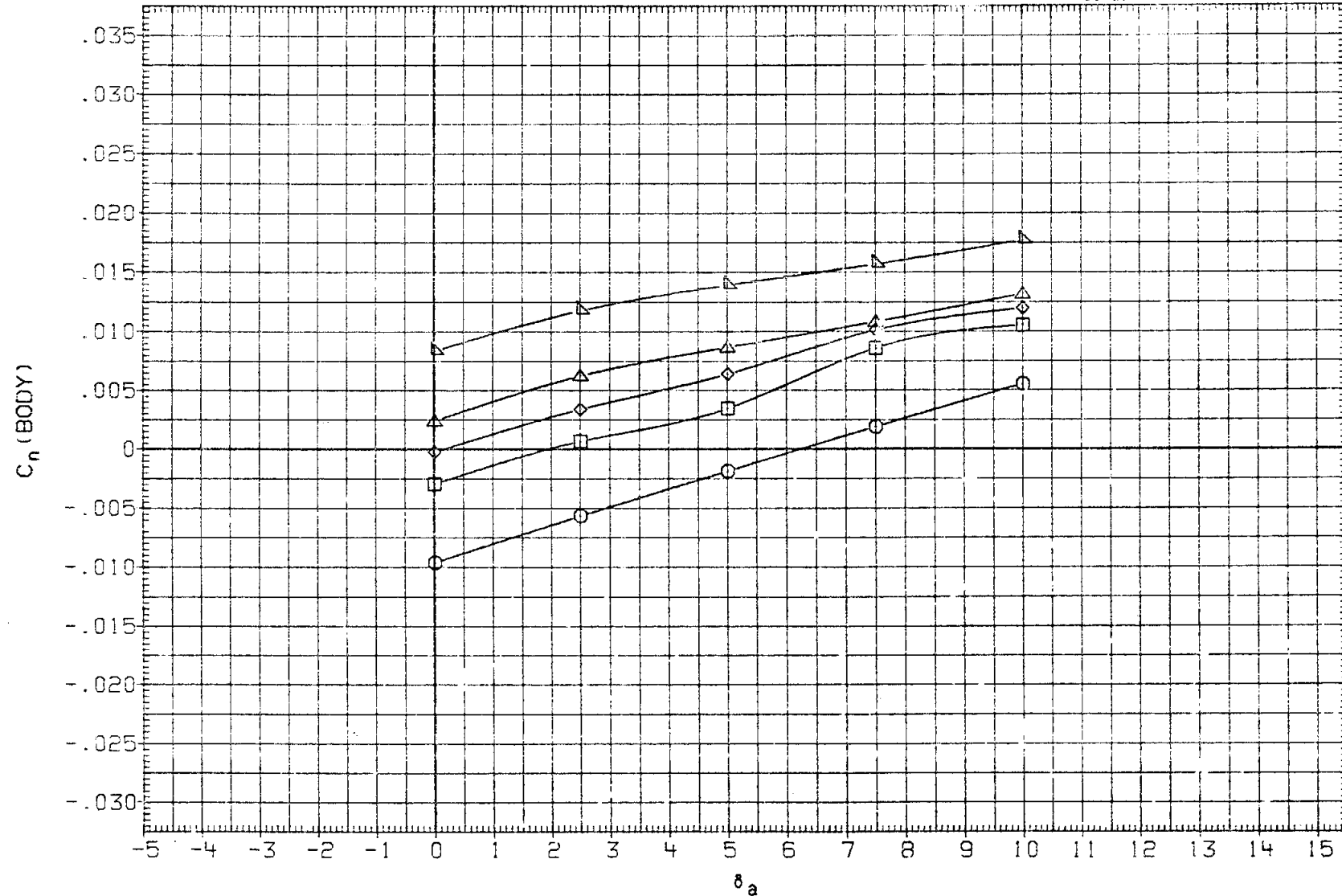


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON



(PE7813) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	BETA	MACH	ELEVON	PARAMETRIC VALUES	ALPHA	BDFLAP
○	-5.000	.900		8.000		
□	-2.000	.000		-7.170		
◇	.000					
△	2.000					
▽	5.000					

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

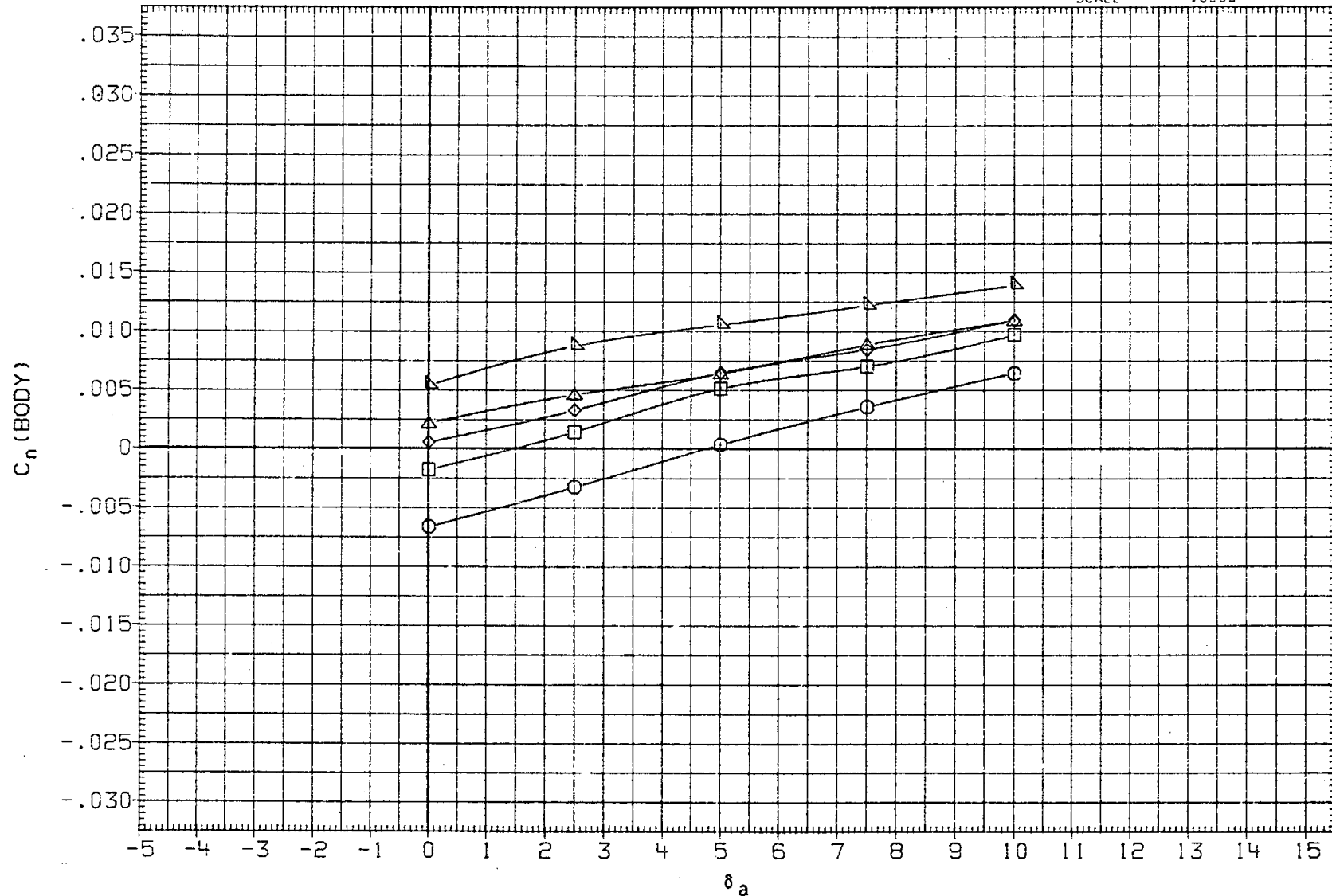


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL		PARAMETRIC VALUES			
BETA		MACH	.900	ALPHA	12.000
-5.000		ELEVON	.000	BDFLAP	-7.170
-2.000					
.000					
2.000					
5.000					

REFERENCE INFORMATION		
SREF	2690.0000	SQ. FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

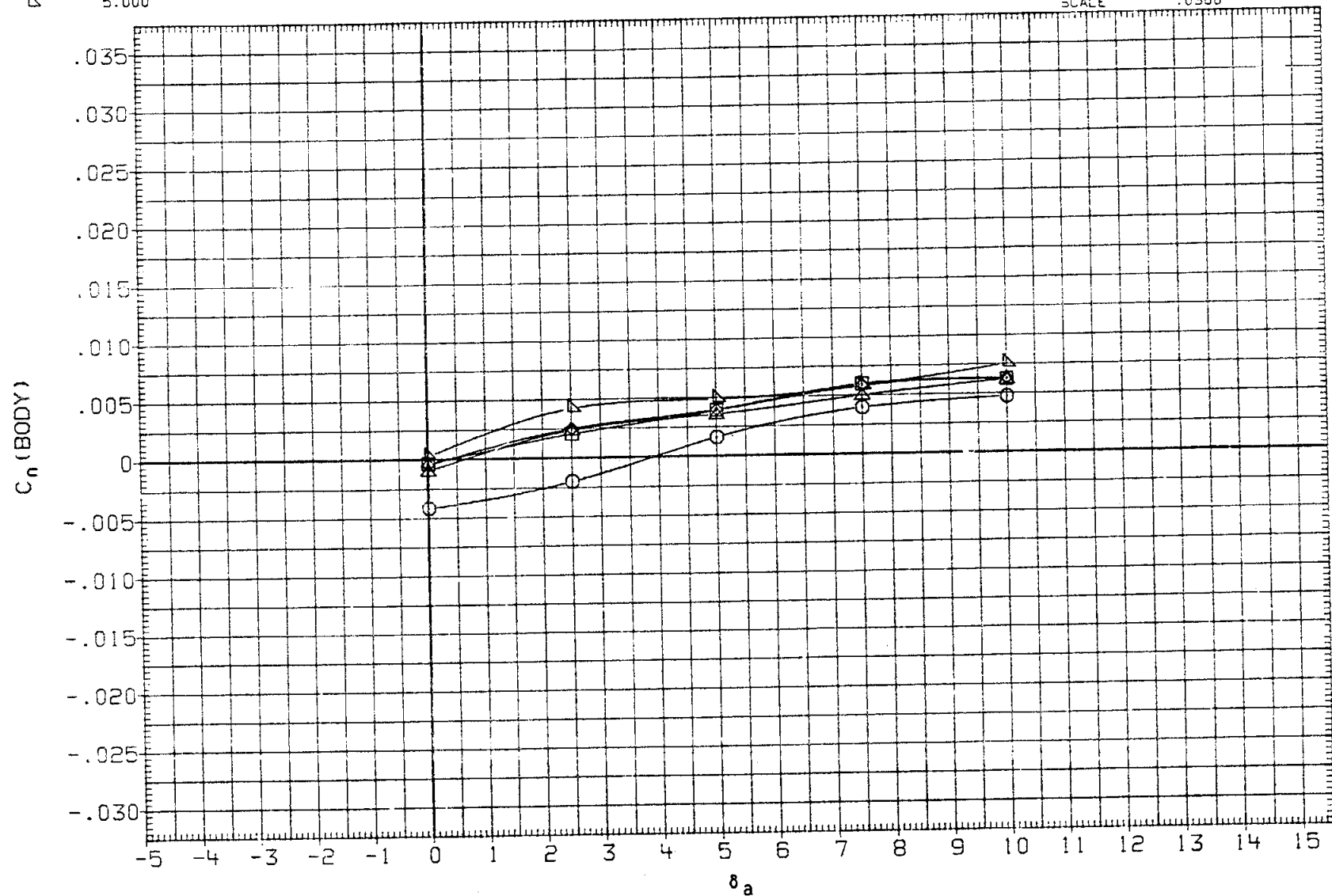


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 0A161 ORBITER

SYMBOL	BETA	PARAMETRIC VALUES			
○	-5.000	MACH	.900	ALPHA	16.000
□	-2.000	ELEVON	.000	BDFLAP	-7.170
◇	.000				
△	2.000				
▽	5.000				

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

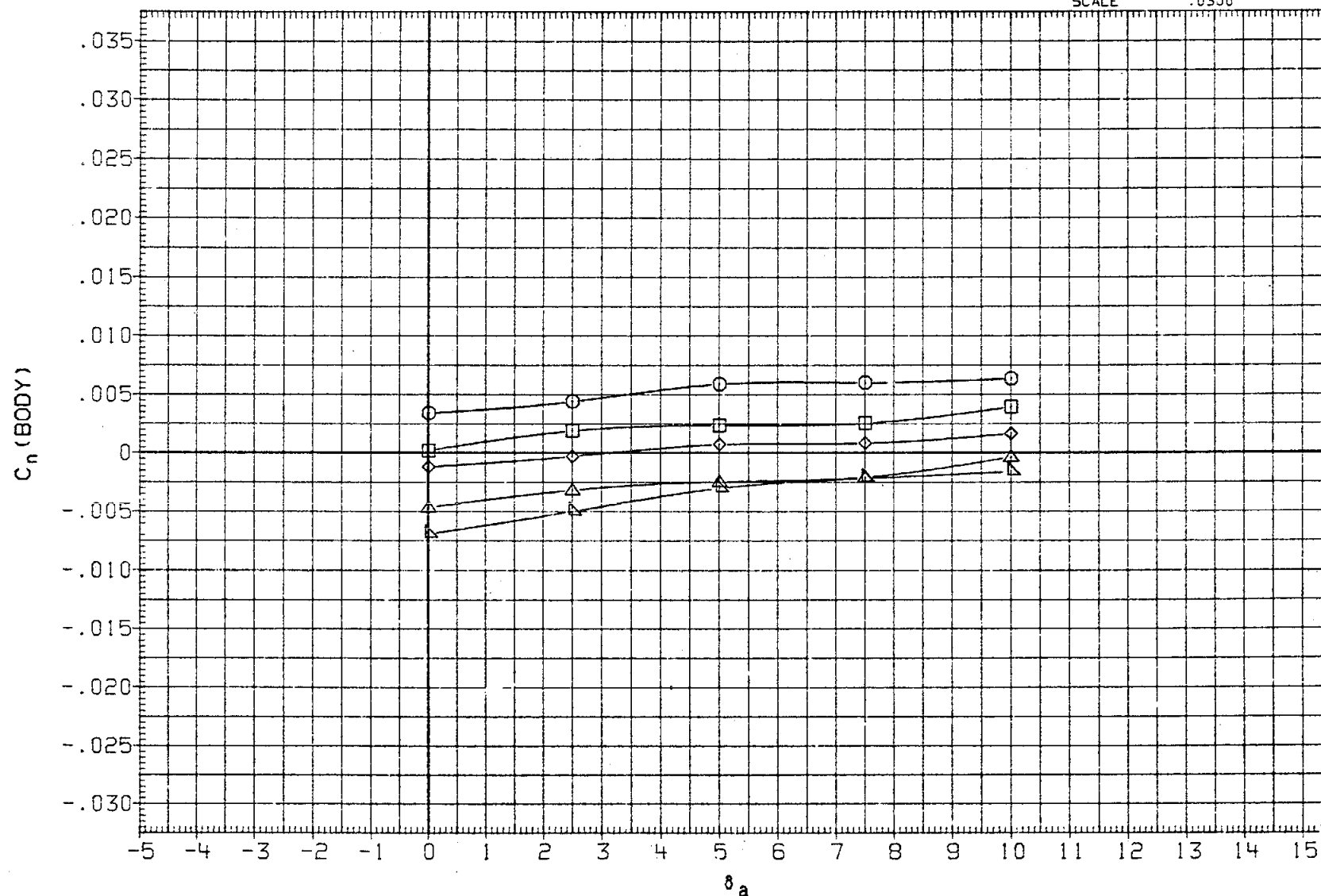


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL

BETA

PARAMETRIC VALUES

○  
 □  
 ◇  
 △  
 ▲

-5.000  
 -2.000  
 .000  
 2.000  
 5.000

MACH  
 ELEVON

.900  
 .000

ALPHA  
 BDFLAP

20.000  
 -7.170

REFERENCE INFORMATION

SREF 2690.0000 SQ. FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1075.6900 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

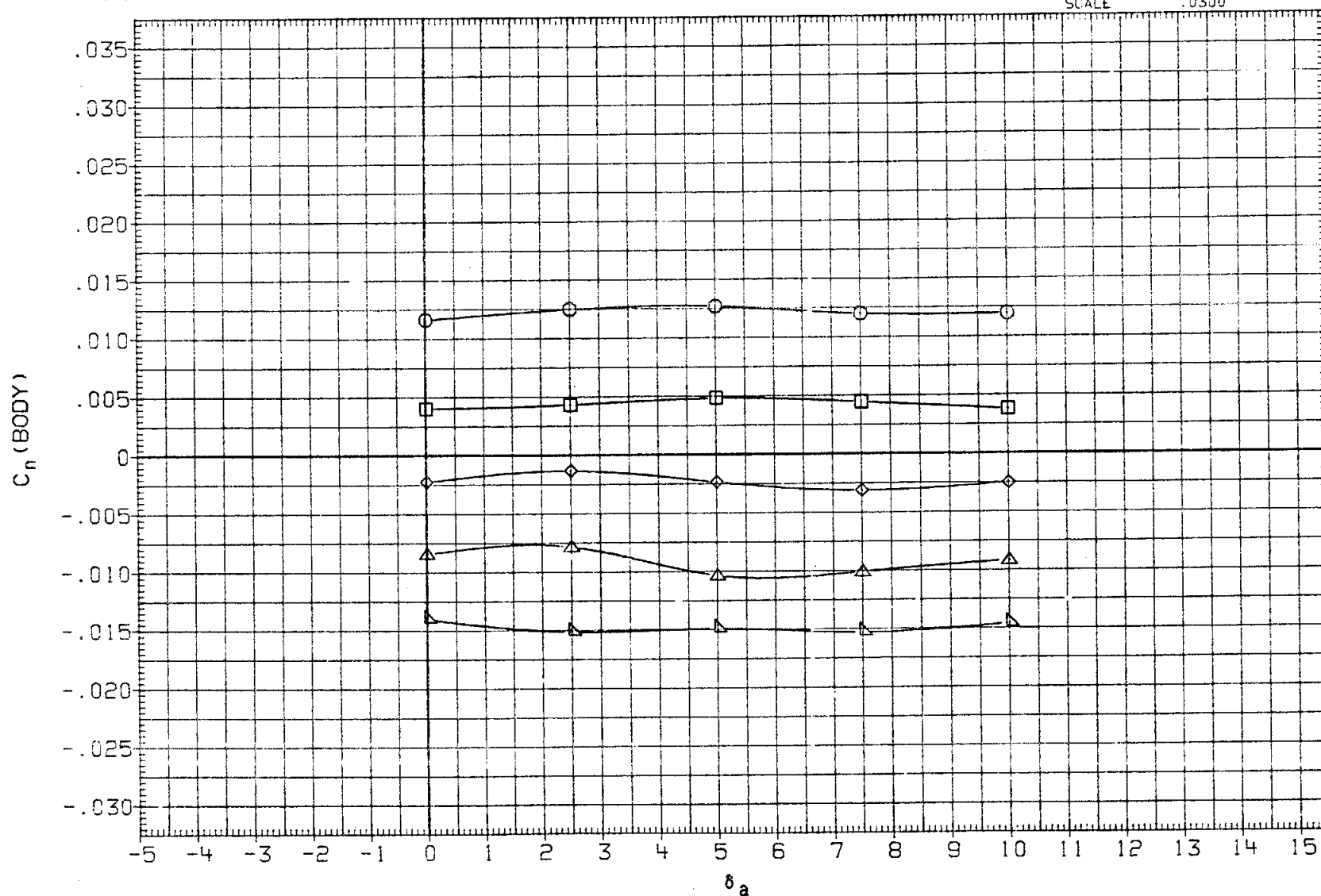


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 0A161 ORBITER

SYMBOL	BETA	MACH	ELEVON	PARAMETRIC VALUES	ALPHA	BDFLAP
○	-5.000	1.200	.000		.000	
◇	-2.000		.000		-7.170	
□	.000					
△	2.000					
▽	5.000					

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.5800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

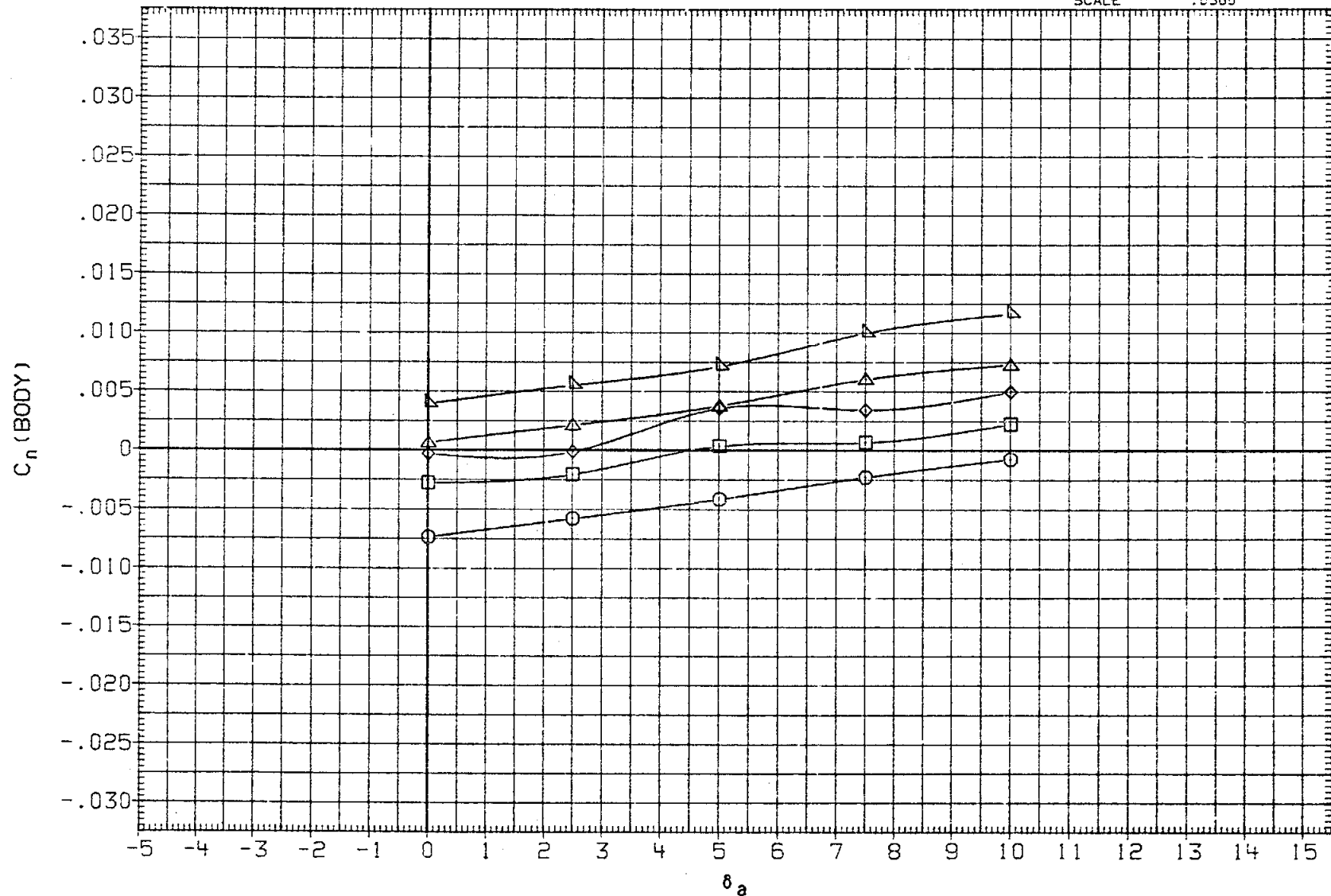


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL	BETA	MACH	ELEVON	PARAMETRIC VALUES	ALPHA	BOFLAP
○	-5.000				4.000	
□	-2.000				-7.170	
◇	.000					
△	2.000					
▽	5.000					

REFERENCE INFORMATION		
SREF	2690.0000	SO. CO.
LREF	474.0000	IN.
BREF	936.0000	IN.
XMRF	1075.0000	IN. XO
YMRF	1000.0000	IN. YO
ZMRF	375.0000	IN. ZO
SCALE	.0000	

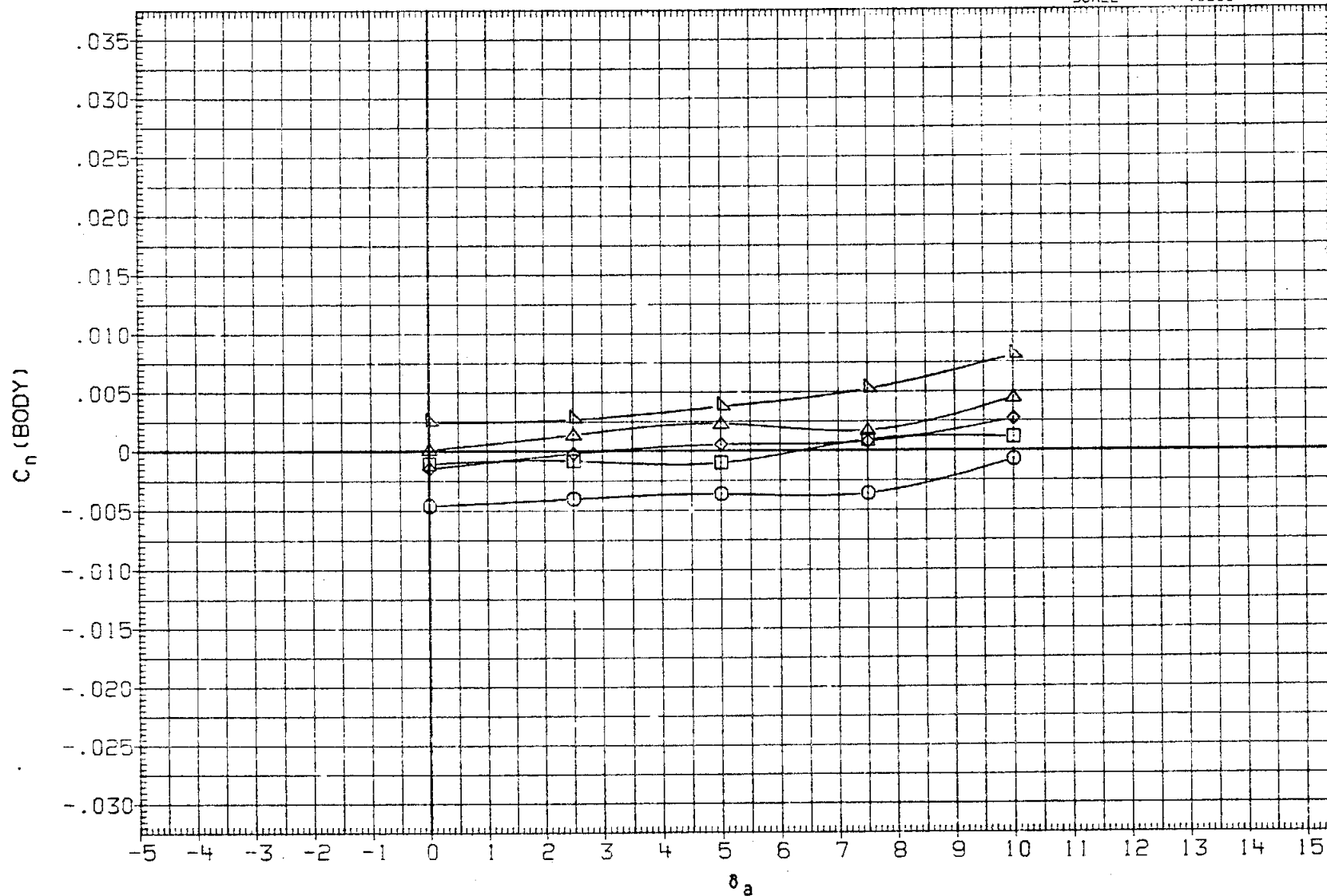


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	BETA	MACH	ELEVON	PARAMETRIC VALUES	ALPHA	BDFLAP
○	-5.000	1.200	8.000			
□	-2.000	.000	-7.170			
◇	.000					
△	2.000					
▽	5.000					

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

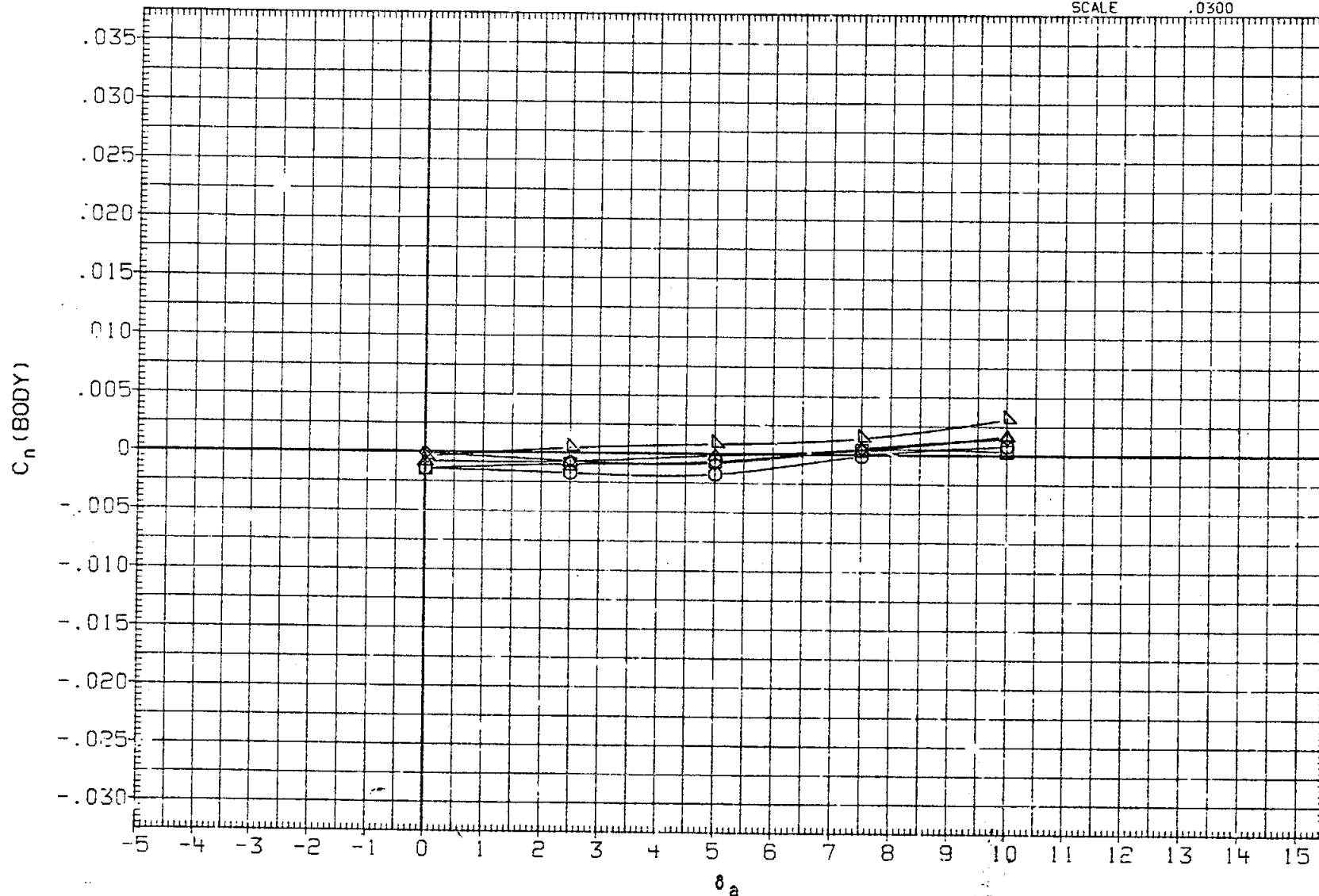


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL		PARAMETRIC VALUES			
○	SELA	MACH	1.200	ALPHA	12.000
□		ELEVON	.000	BOFLAP	-7.170
◇					
△					
▽					

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6000	IN.
XMRP	1076.6000	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

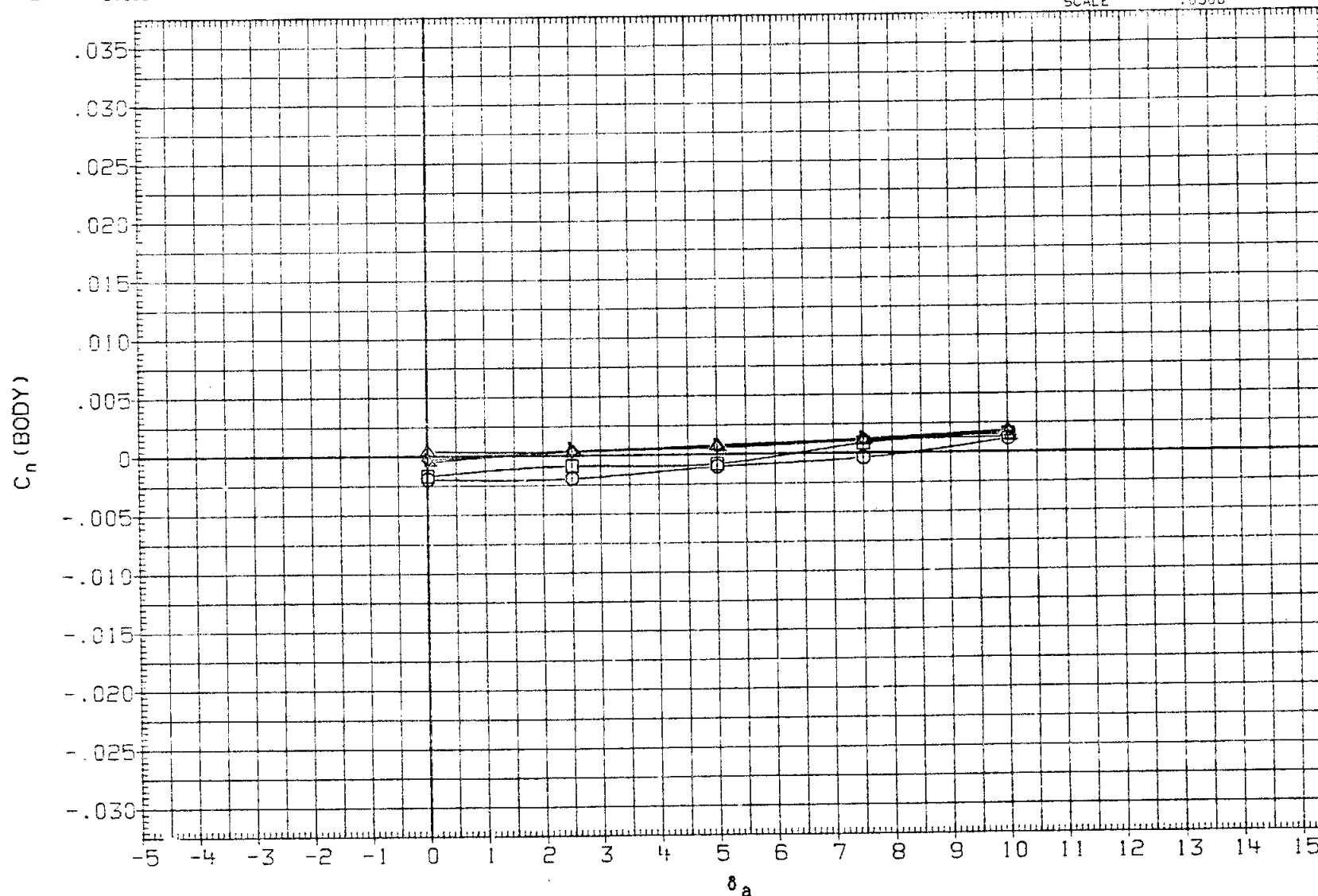


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON



(PE7813) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	BETA	MACH	ELEVON	PARAMETRIC VALUES	ALPHA	BOFLAP
○	-5.000	1.200	.000	16.000	-7.170	
□	-2.000					
△	0.000					
▽	2.000					
◇	5.000					

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

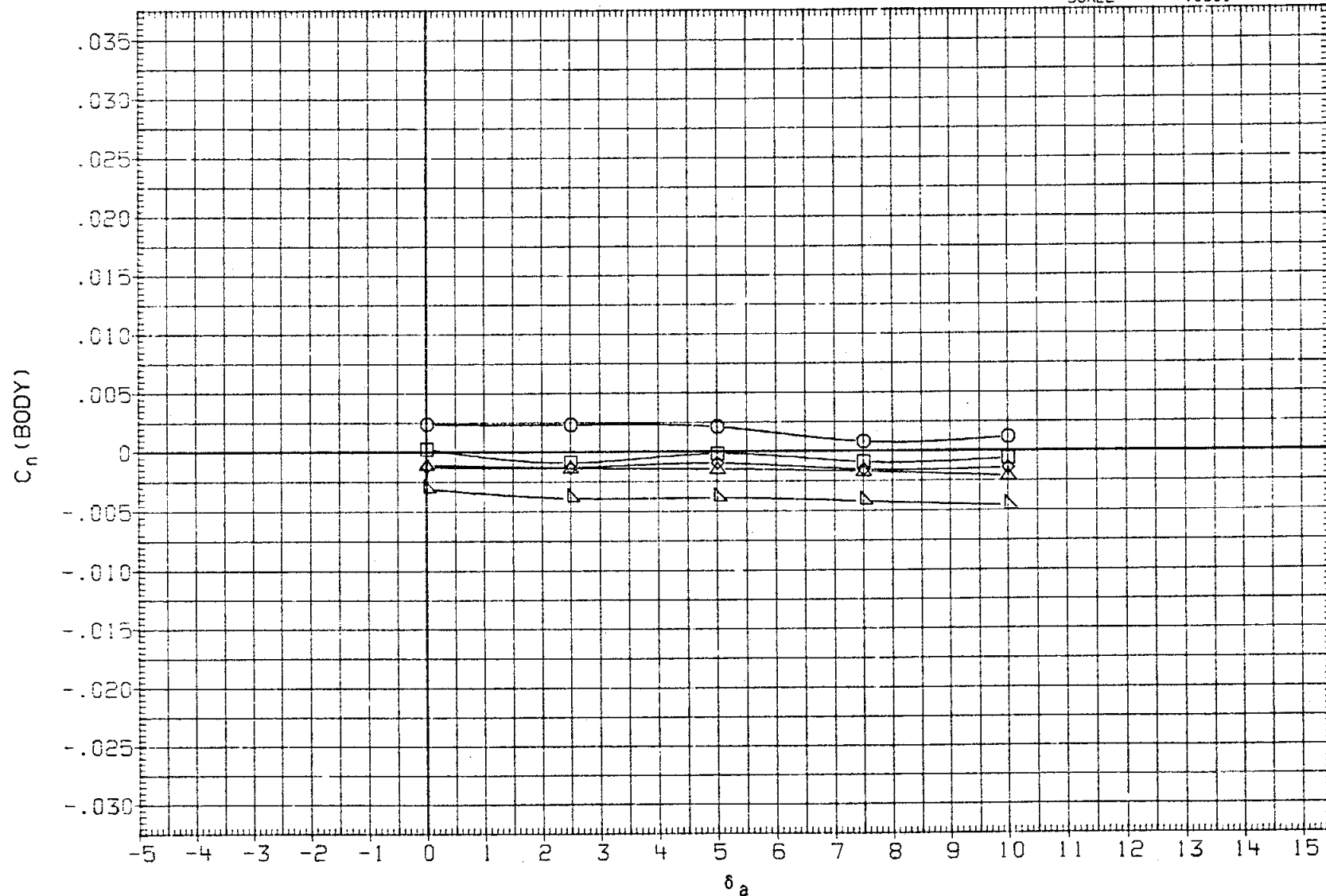


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL BETA PARAMETRIC VALUES

1.000	MACH	1.200	ALPHA	20.000
2.000	ELEVON	1.000	BDCLAP	-7.170
3.000				
4.000				
5.000				

REFERENCE INFORMATION

SREF	2690.0000	SCALE
UREF	474.8000	
BREF	936.6800	IN. X0
YMRP	1076.6800	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

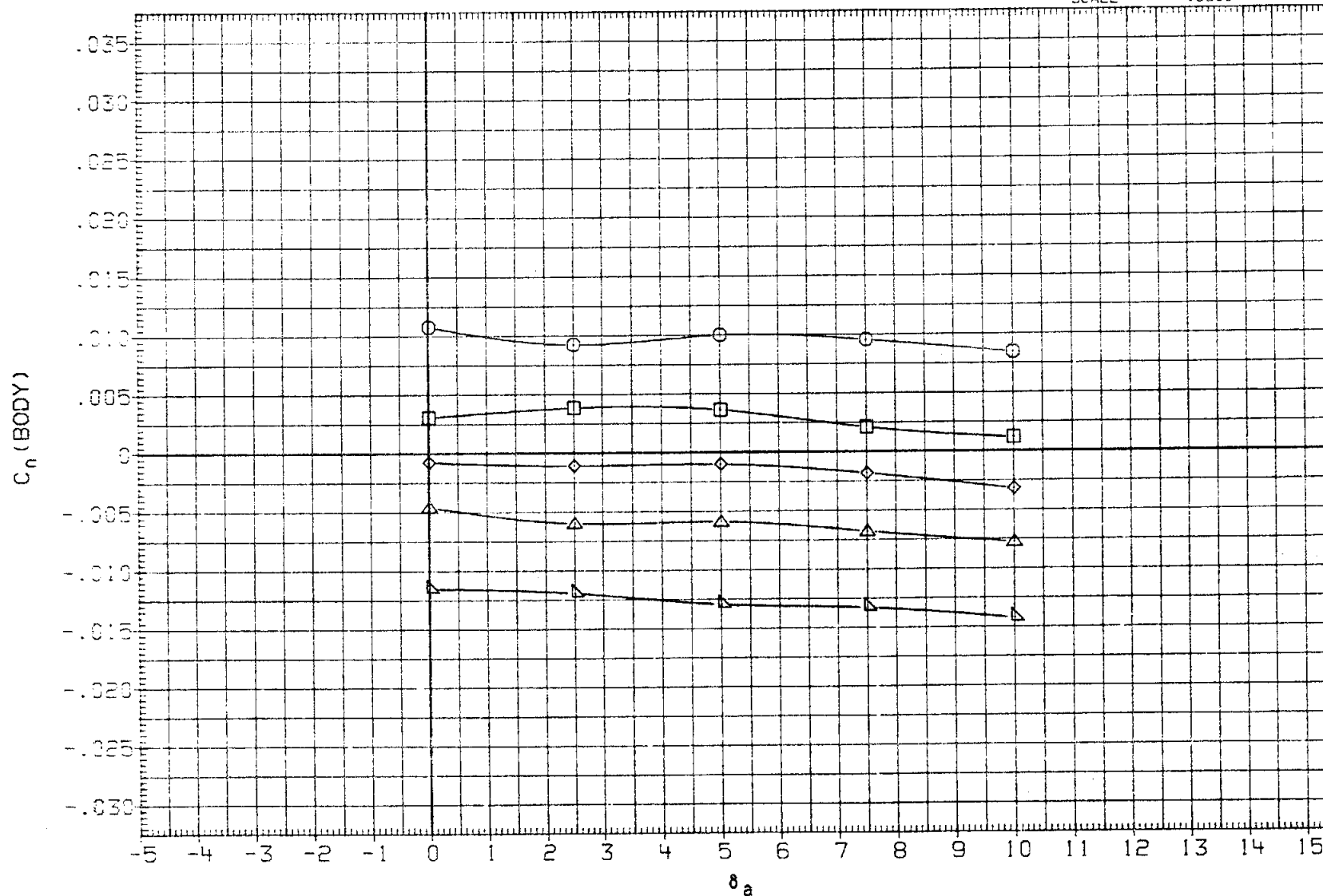


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	BETA	MACH	PARAMETRIC VALUES	ALPHA	BDFLAP
○	-5.000	1.400		.000	
□	-2.000	.000		-7.170	
◇	.000				
△	2.000				
▽	5.000				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

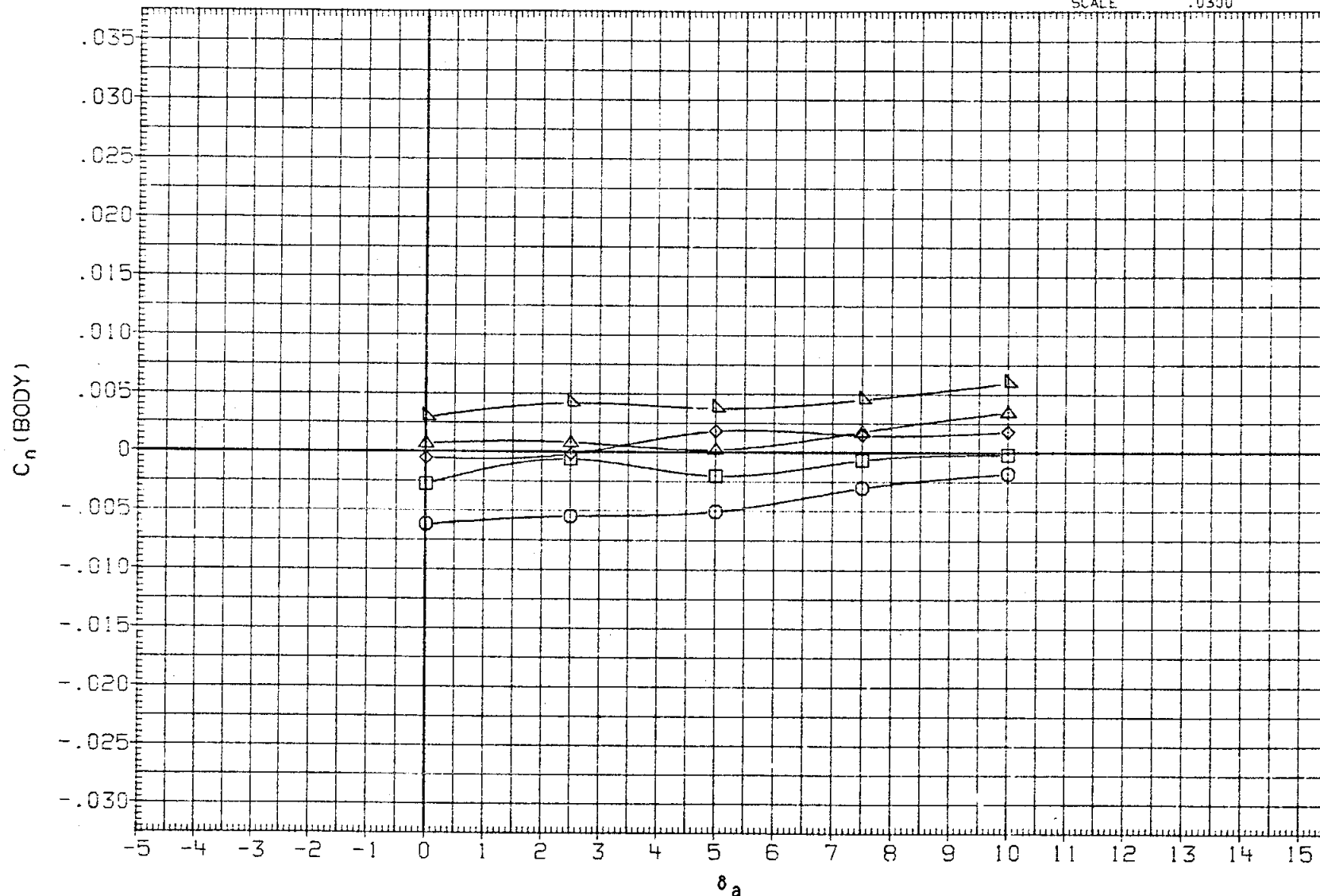


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL

BETA

PARAMETRIC VALUES

000000

-5.000  
-2.000  
.000  
2.000  
5.000MACH  
ELEVON1.400  
.000ALPHA  
BDFLAP4.000  
-7.170

REFERENCE INFORMATION

SREF	2690.0000	90. FT.
LREF	474.0000	IN.
BREF	936.6000	IN.
XMRP	1076.6000	IN. X0
YMRP	0.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

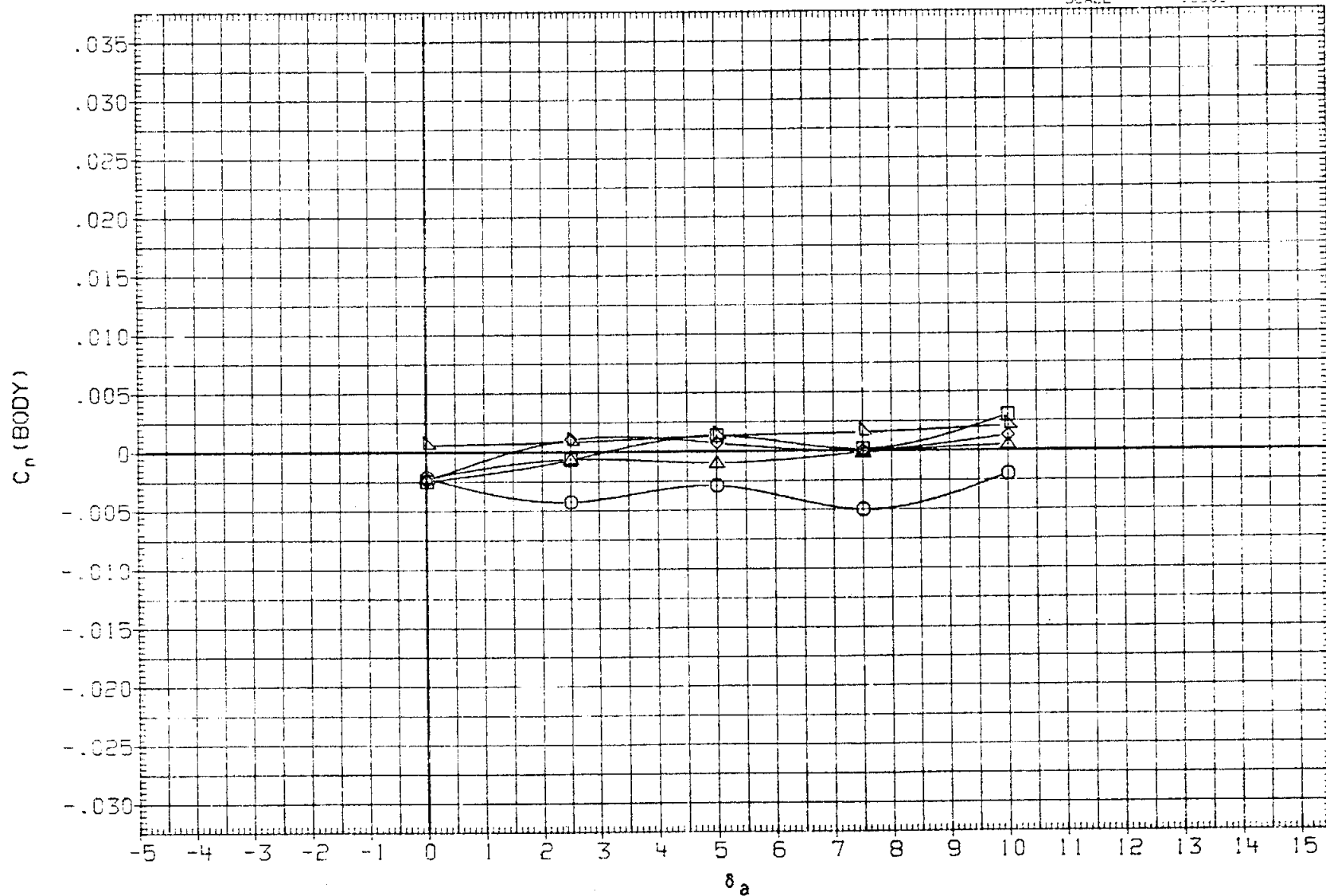


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 0A161 ORBITER

SYMBOL	BETA	MACH	ELEVON	PARAMETRIC VALUES	ALPHA	BDCLAP
○	-5.000	1.400	8.000			
□	-2.000	1.400	-7.170			
◇	.000	1.400				
△	2.000	1.400				
▽	5.000	1.400				

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

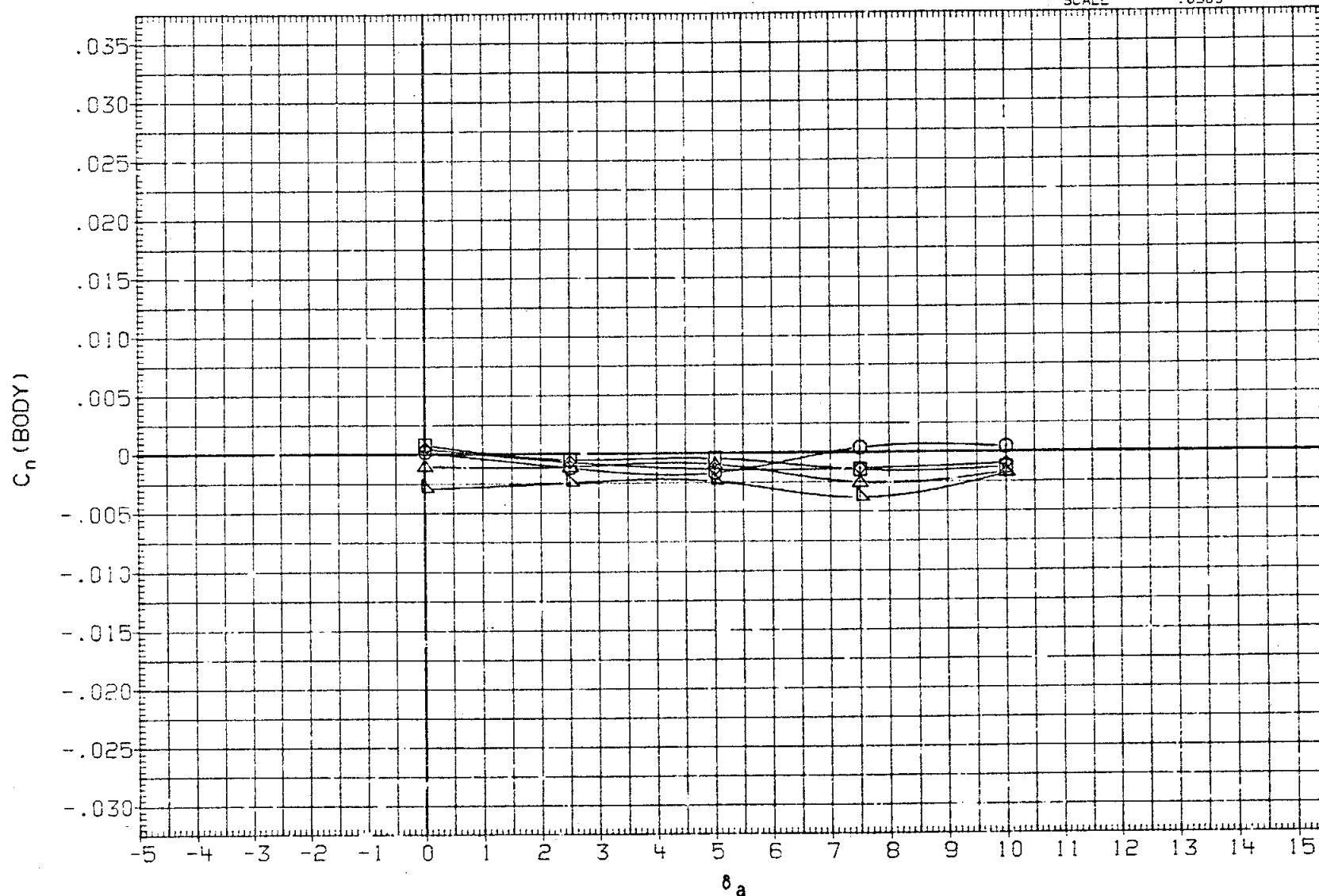


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL

BETA

PARAMETRIC VALUES

○  
◇  
△  
▽

-5.000  
-2.000  
.000  
2.000  
5.000

MACH  
ELEVON

1.400  
.000

ALPHA  
BDFLAP

12.000  
-7.170

REFERENCE INFORMATION

SCFF 2690.0000 SQ. FT.  
LREF 474.0000 IN.  
BREF 936.6600 IN.  
YMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE 9300

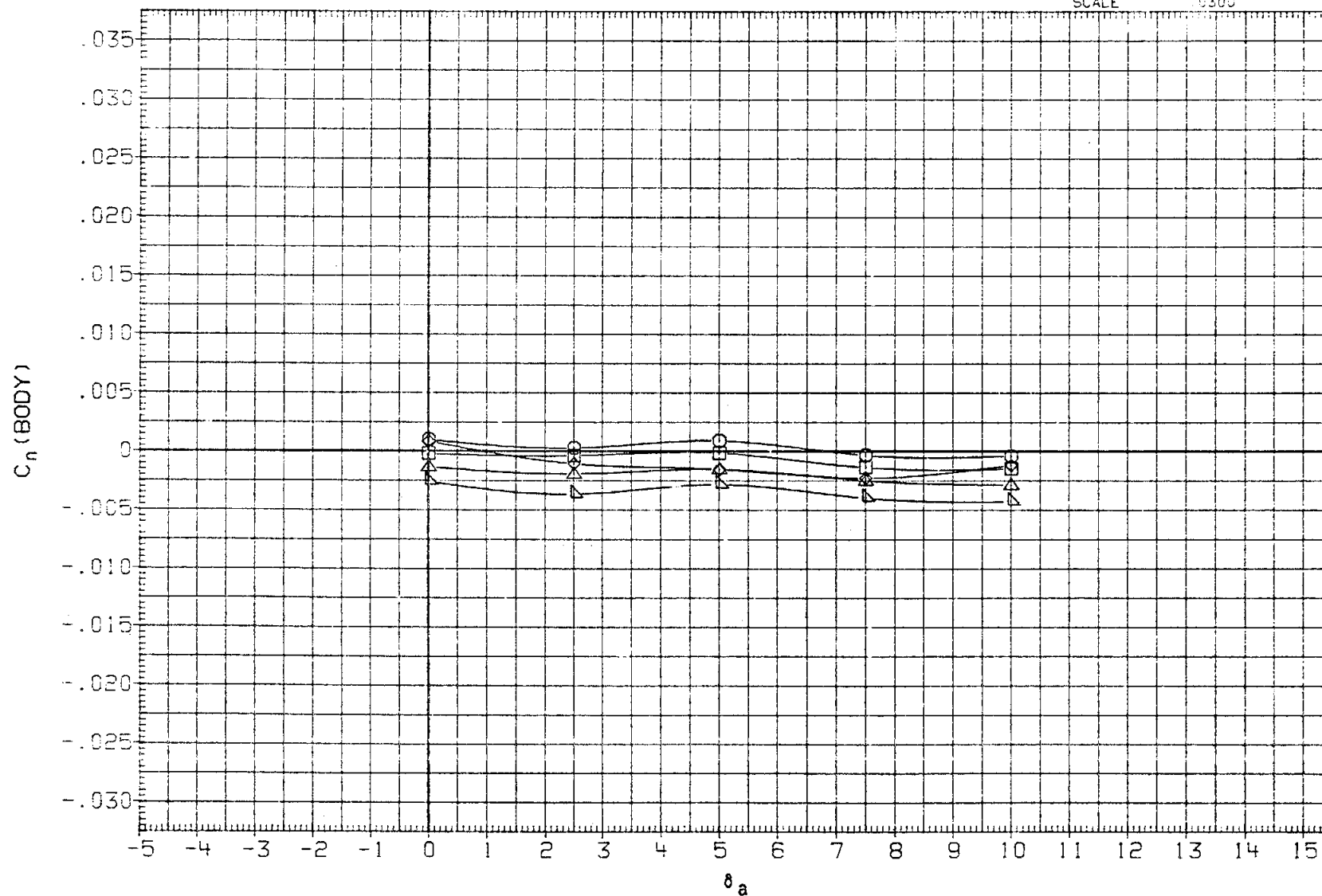


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	BETA	MACH	ELEVON	PARAMETRIC VALUES	ALPHA	BDFLAP
○	-5.000	1.400	.000	16.000	-7.170	
□	-2.000					
◇	.000					
△	2.000					
▽	5.000					

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

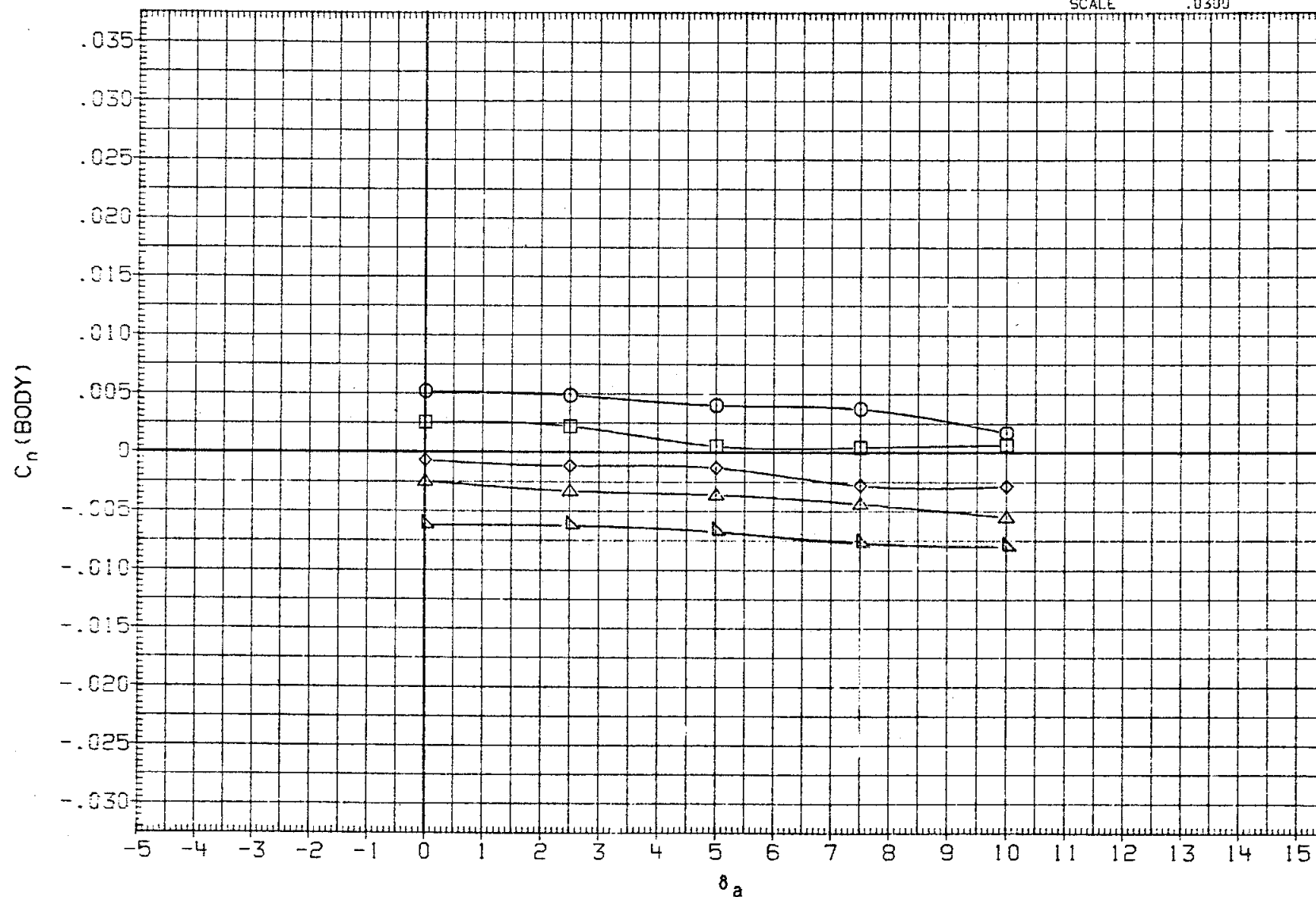


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SWEEP

BETA

PARAMETRIC VALUES

-5.000

MACH

1.400

ALPHA

20.000

-2.000

ELEVON

.000

BDFLAP

-7.170

.000

2.000

5.000

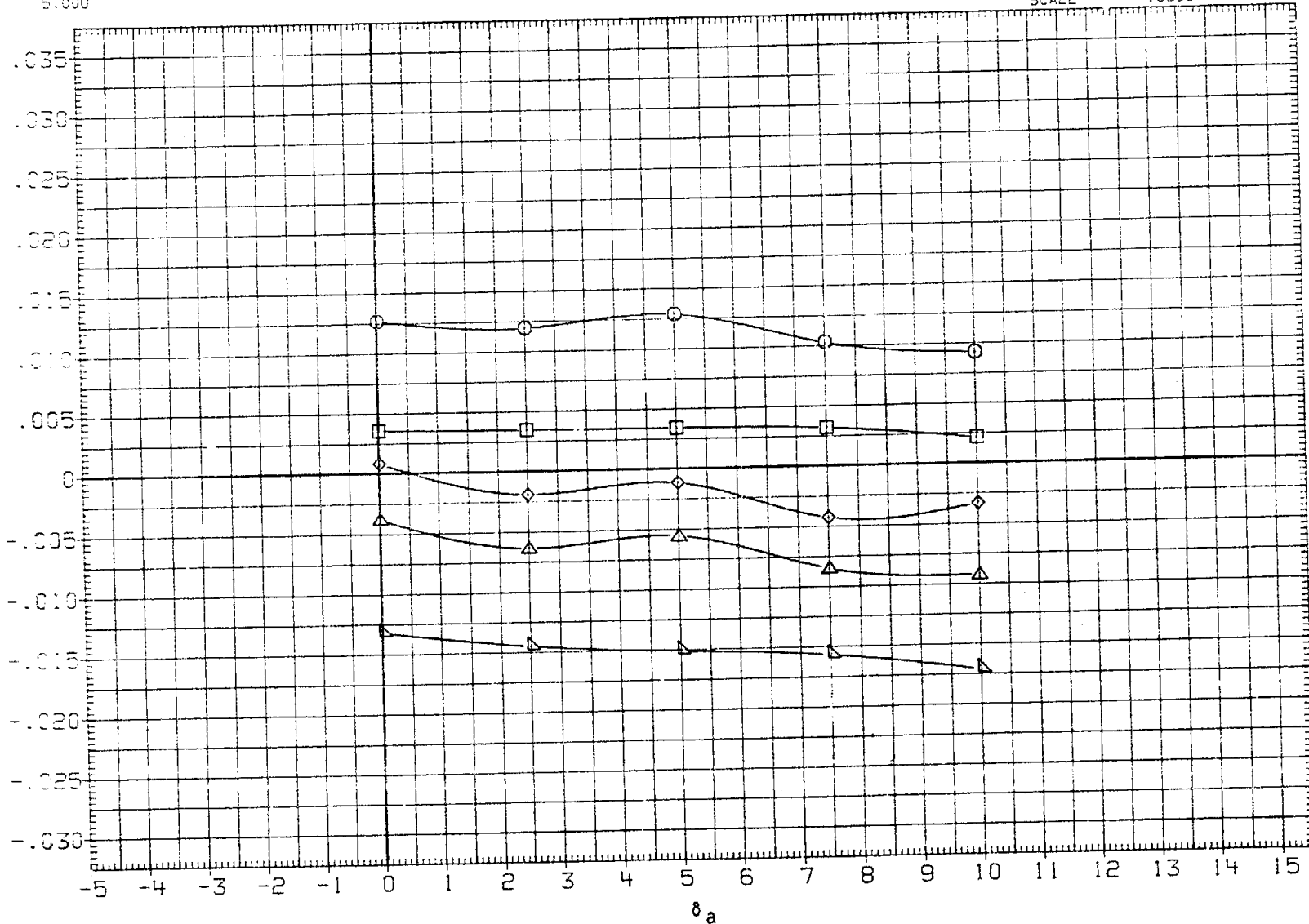
 $C_n$  (BODY)

FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

REFERENCE INFORMATION

SREF	2690.0000	SCALE
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6900	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	



(PE7813) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	BETA	MACH	ELEVON	PARAMETRIC VALUES	ALPHA	BOFLAP
○	-5.000	.600	.000		.000	
□	-2.000	.000	.000		-7.170	
◇	.000					
△	2.000					
▽	5.000					

REFERENCE INFORMATION		
SREF	2590.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

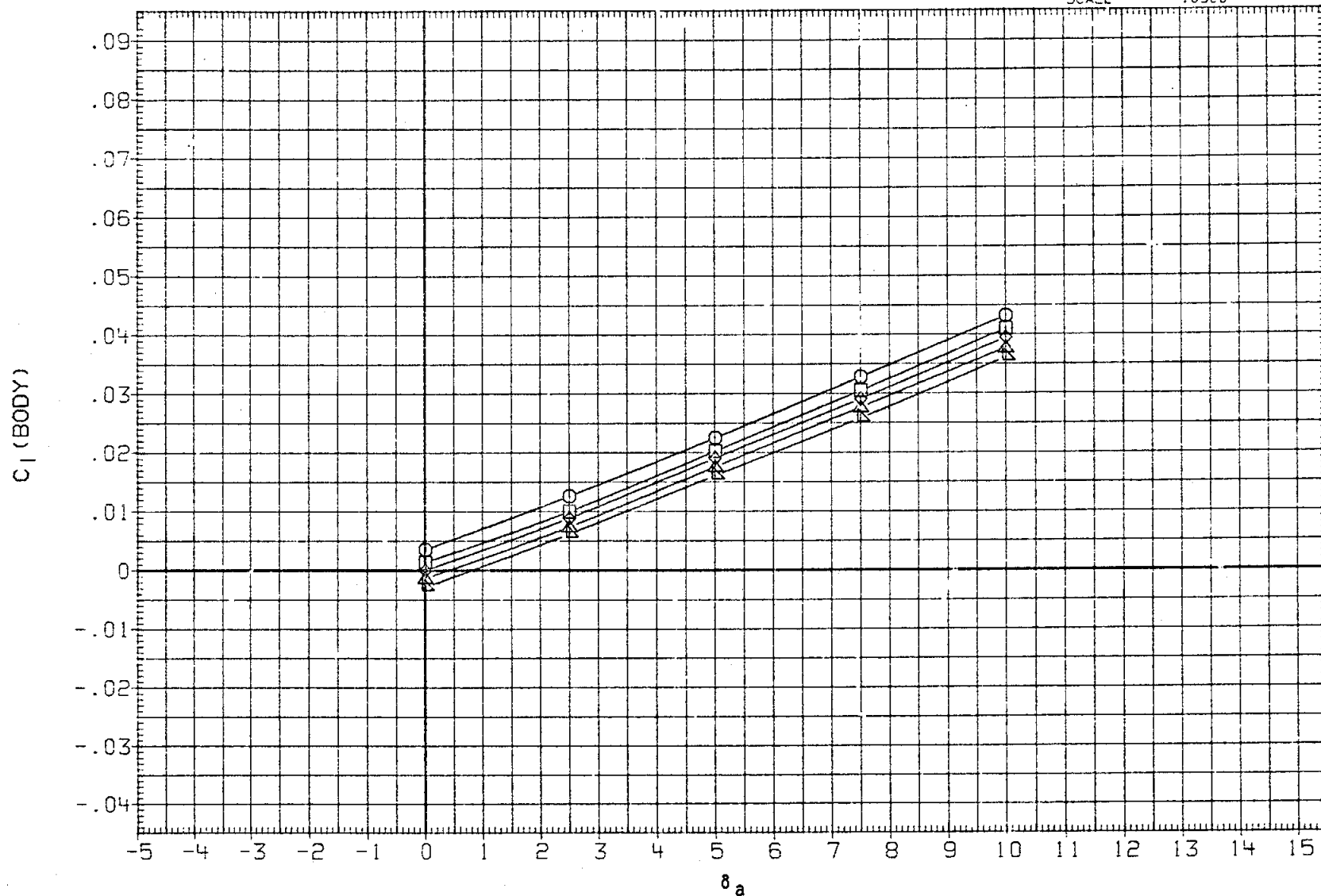


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL

BETA

PARAMETRIC VALUES

MACH  
ELEVON.600  
.000ALPHA  
BDFLAP4.000  
-7.1700000  
0000  
0000  
0000  
0000-5.000  
2.000  
1.000  
2.000  
3.000

REFERENCE INFORMATION

SREF	2690.0000	SC.FT.
LRP	474.8000	IN.
BRP	936.6800	IN.
XMPP	1075.6800	IN. XO
YMPP	10000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

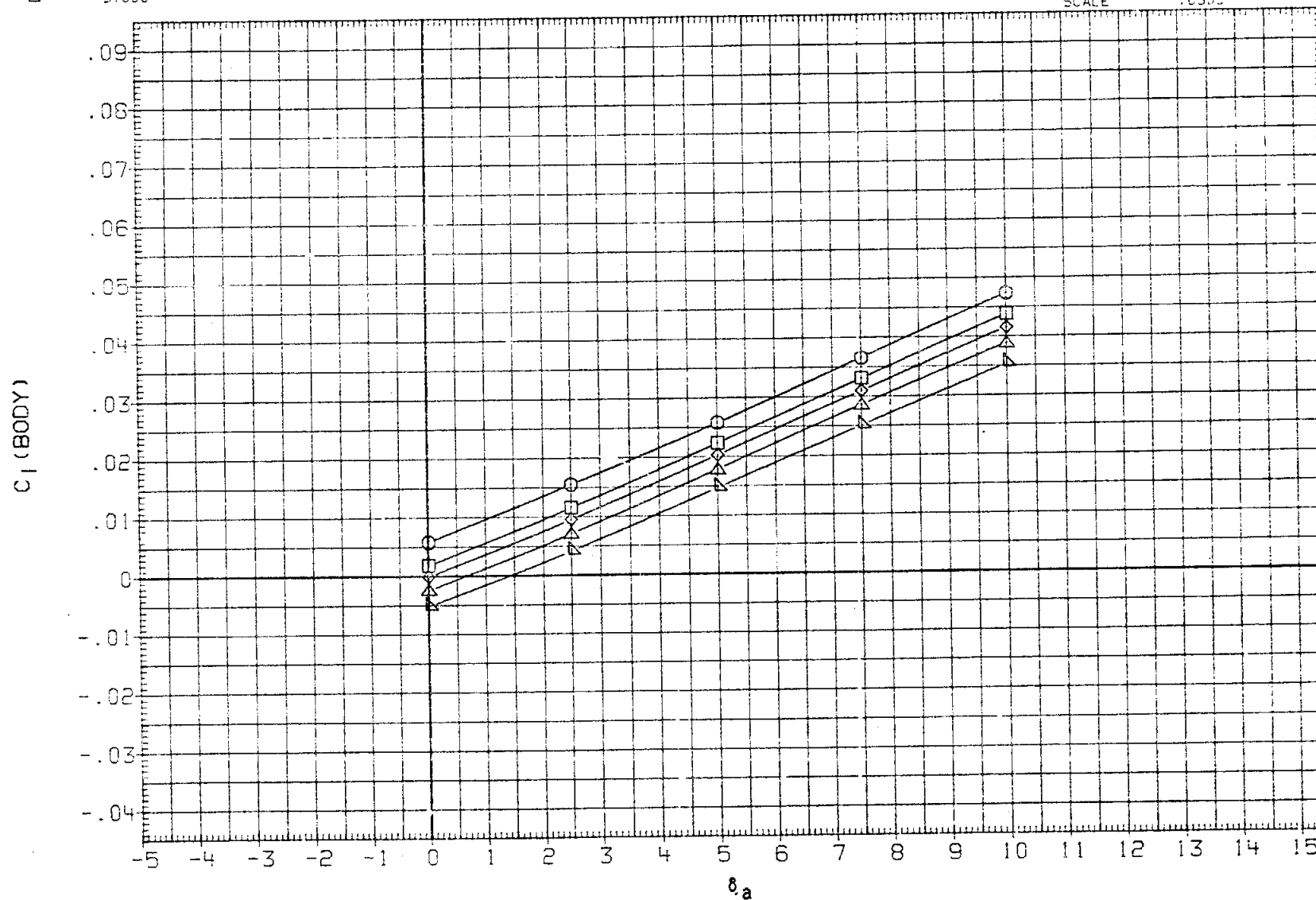


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	BETA	MACH	PARAMETRIC	VALUES
C <sub>L</sub> C <sub>D</sub> C <sub>Y</sub> C <sub>N</sub>	-5.000	.600	ALPHA	8.000
	-2.000	.000	BDFLAP	-7.170
	.000			
	2.000			
	5.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

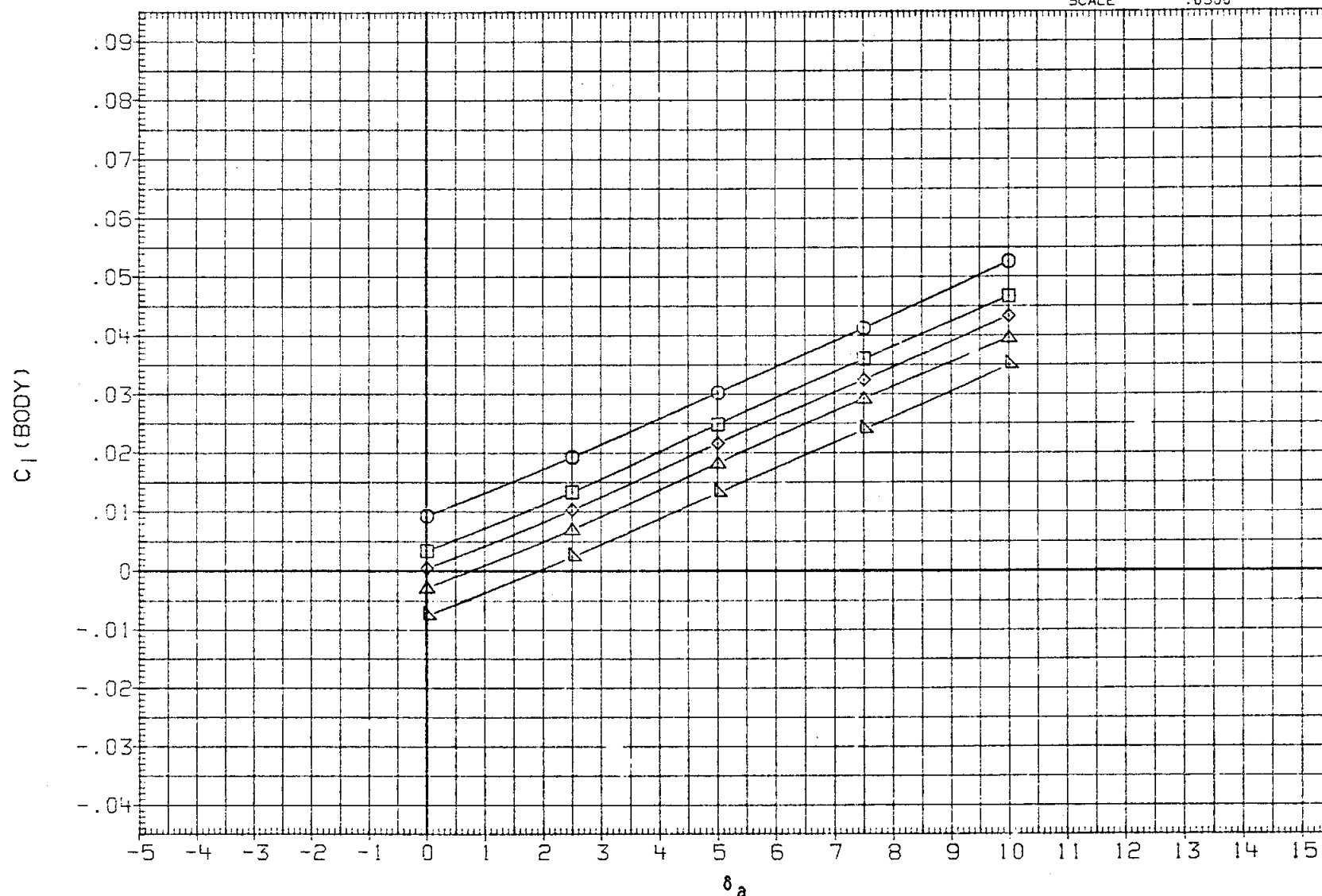


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL

BETA

PARAMETRIC VALUES

MACH  
ELEVON.600  
.000ALPHA  
BDFLAP12.000  
-7.170O  
◇  
□  
△-5.000  
-2.000  
.000  
2.000  
5.000

REFERENCE INFORMATION

SREF	2690.0000	SQ. FT.
LREF	474.8000	IN.
BREF	938.6800	IN.
YMPP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

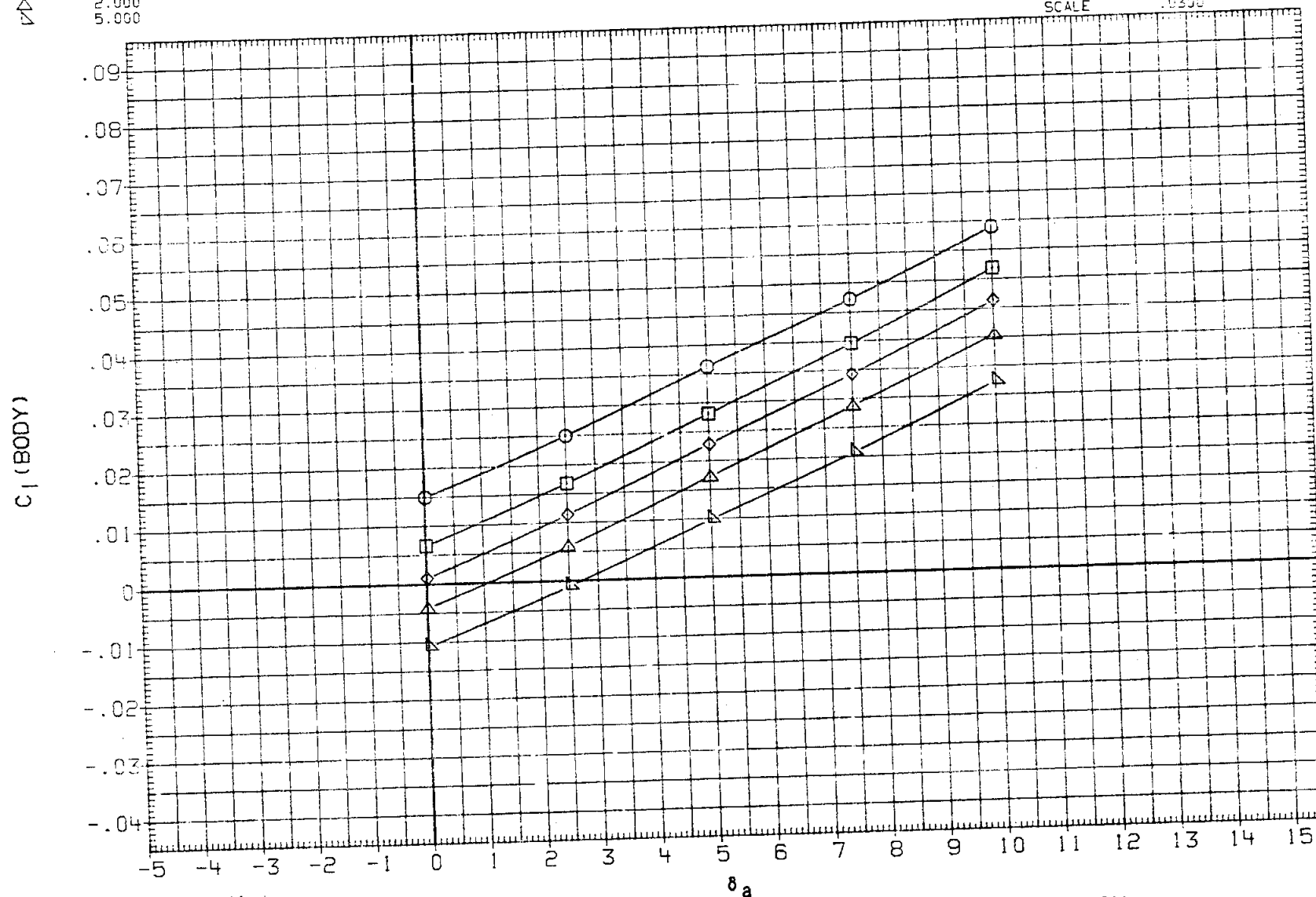


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 OA161 ORBITER

SYMBOL		PARAMETRIC VALUES			
○	BETA	MACH	.600	ALPHA	16.000
□	-5.000	ELEVON	.000	BDFLAP	-7.170
◇	-2.000				
△	.000				
	2.000				
	5.000				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

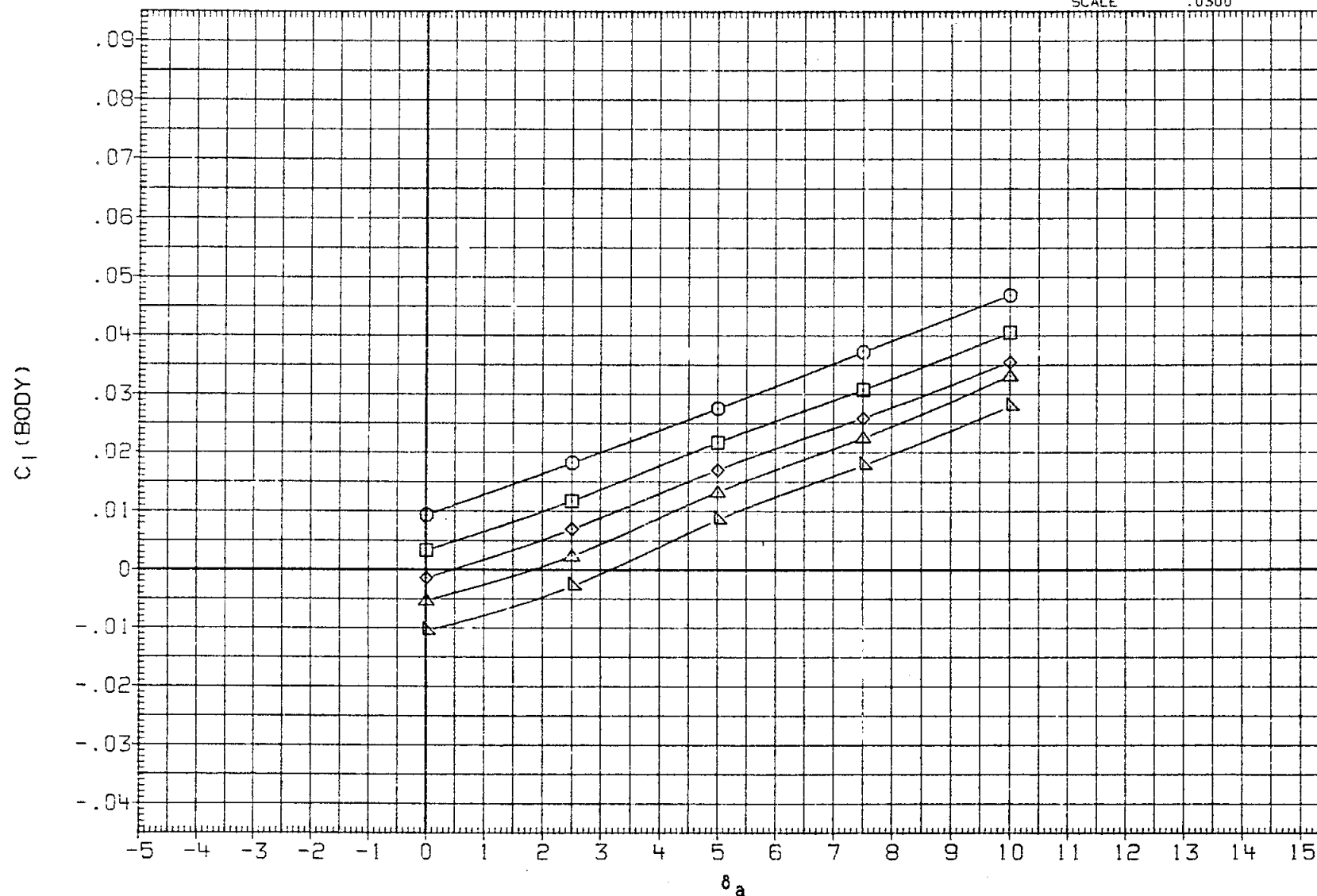


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL	BETA	MACH	PARAMETRIC	VALUES	ALPHA	BDFLAP
000044	-5.000		.600		20.000	
	-2.000	ELEVON	.000		-7.170	
	.000					
	2.000					
	5.000					

REFERENCE INFORMATION		
SREF	2690.0000	50. FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

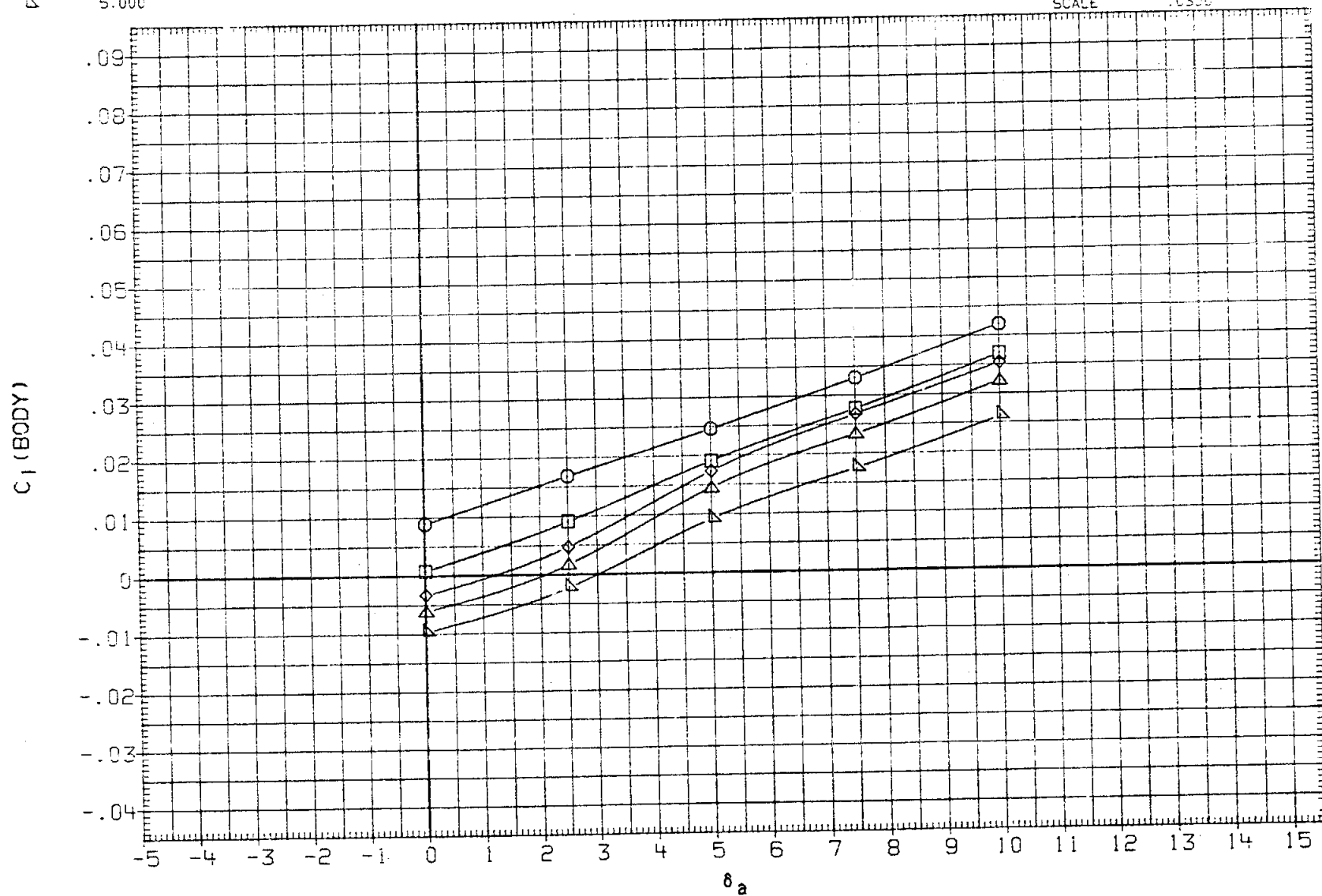


FIG. 5 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 OA161 ORBITER

SYMBOL		PARAMETRIC VALUES			
BETA	-5.000	MACH	.900	ALPHA	.000
	-2.000	ELEVON	.000	BDFLAP	-7.170
	.000				
	2.000				
	5.000				

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

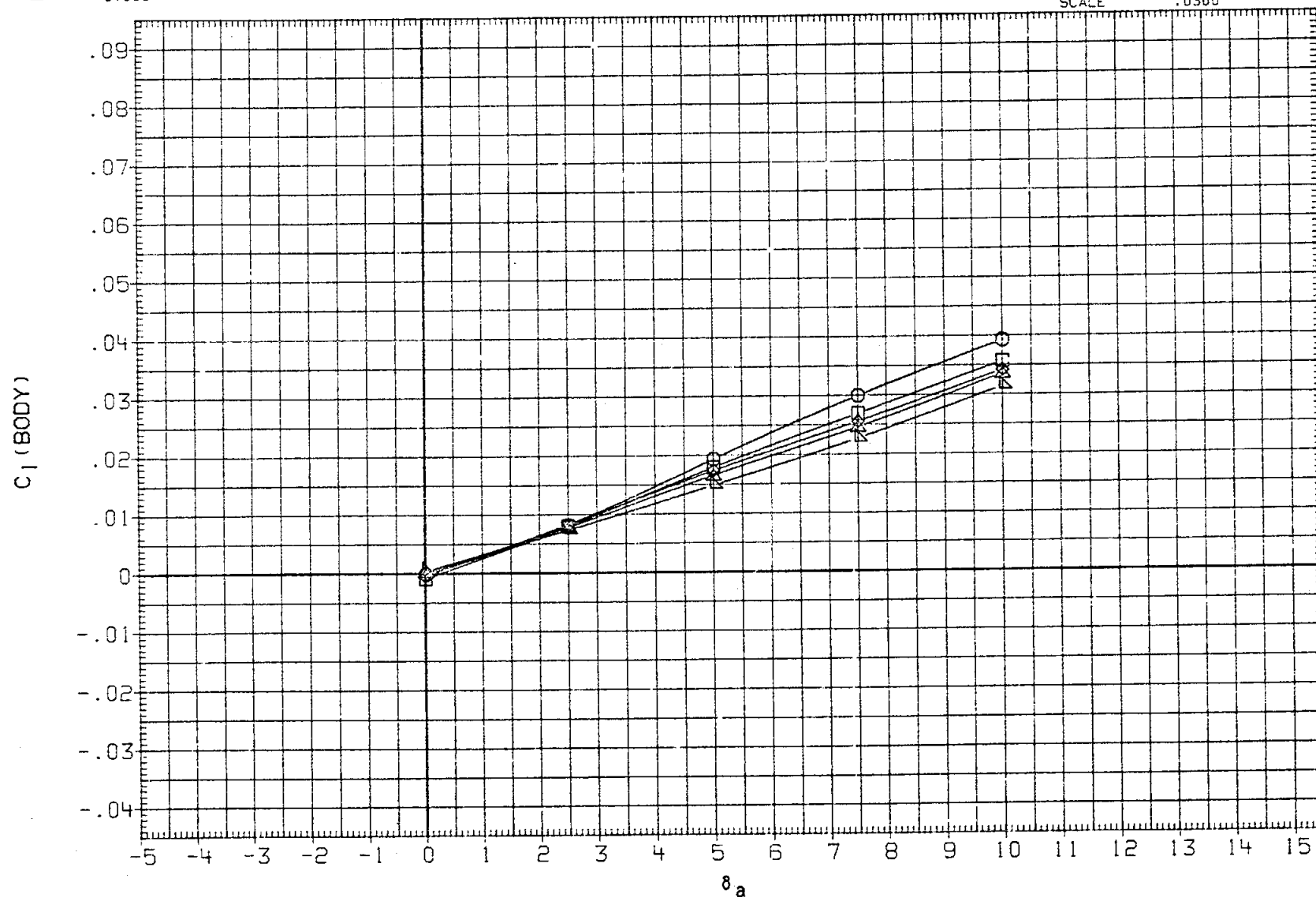


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 0A161 ORBITER

PARAMETRIC VALUES	
BETA	-5.000
MACH	.900
ALPHA	4.000
FLEVON	.000
BDFLAP	-7.170

SYMBOL  
 0  
 1  
 2  
 3  
 4  
 5

REFERENCE INFORMATION

SREF	2690.0000	50. FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

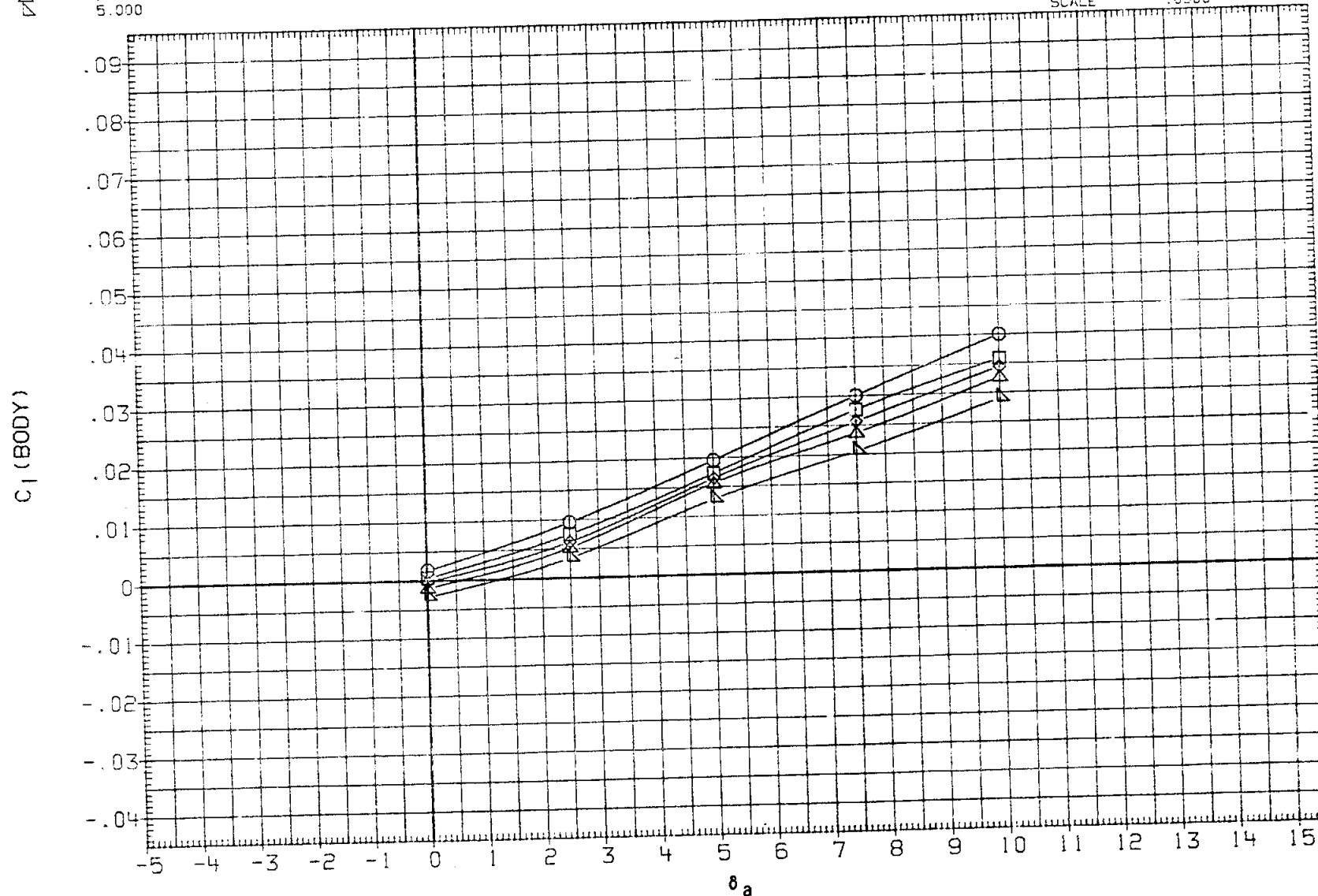


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON



(PE7813) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	BETA	MACH	PARAMETRIC VALUES	ALPHA	BD FLAP
○	-5.000		.900	8.000	
□	-2.000	ELEVON	.000	-7.170	
◇	.000				
△	2.000				
▽	5.000				

REFERENCE INFORMATION

SREF	2690.0000	SQ. FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

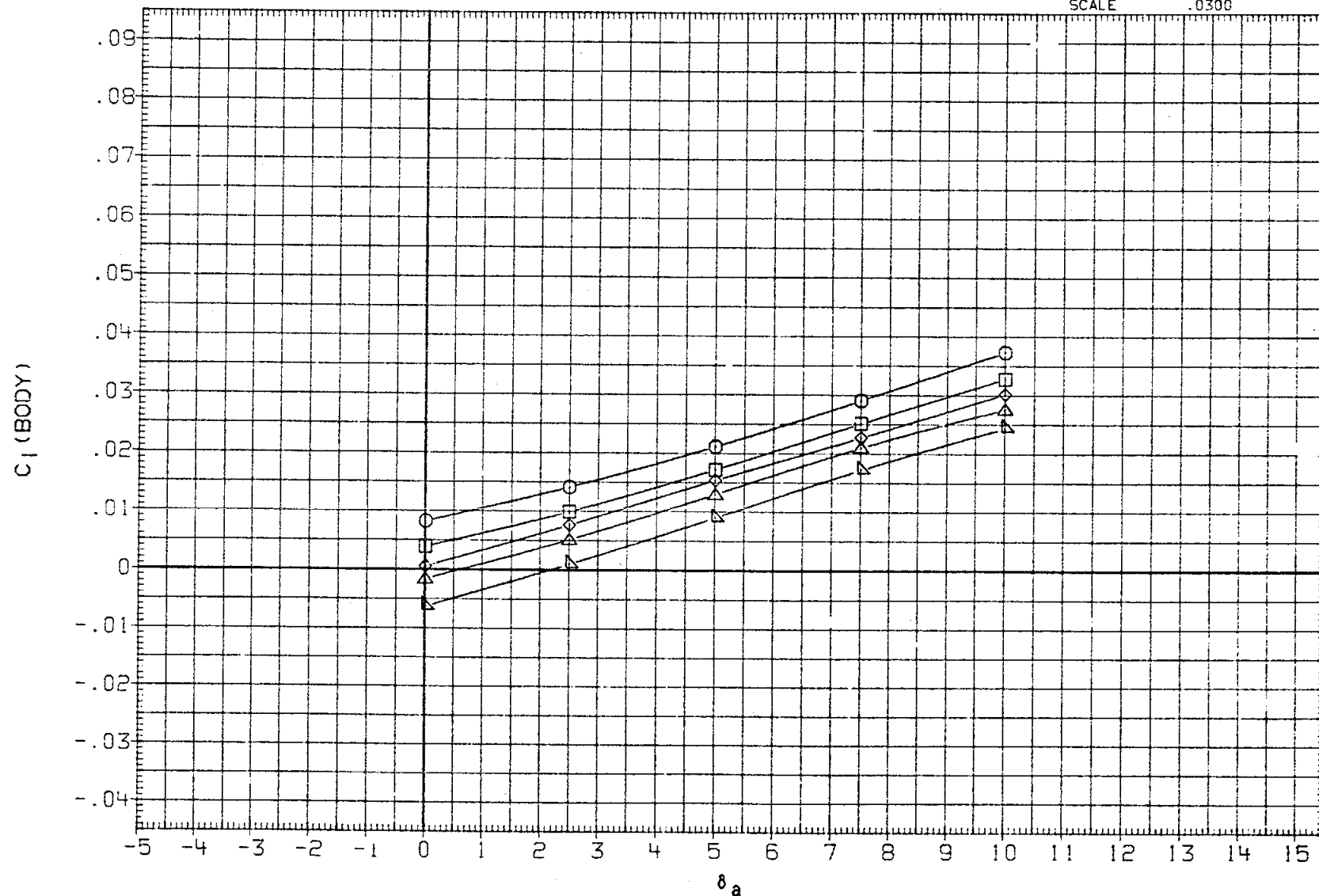


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL	BETA	MACH	ELEVON	PARAMETRIC VALUES	ALPHA	BCFLAP
○	-5.000			.900	12.000	
□	-2.000			.000	-7.170	
◇	.000					
△	2.000					
	5.000					

REFERENCE INFORMATION		
SREF	2690.0000	50.F1.
UREF	474.8000	IN.
ZREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.6300	

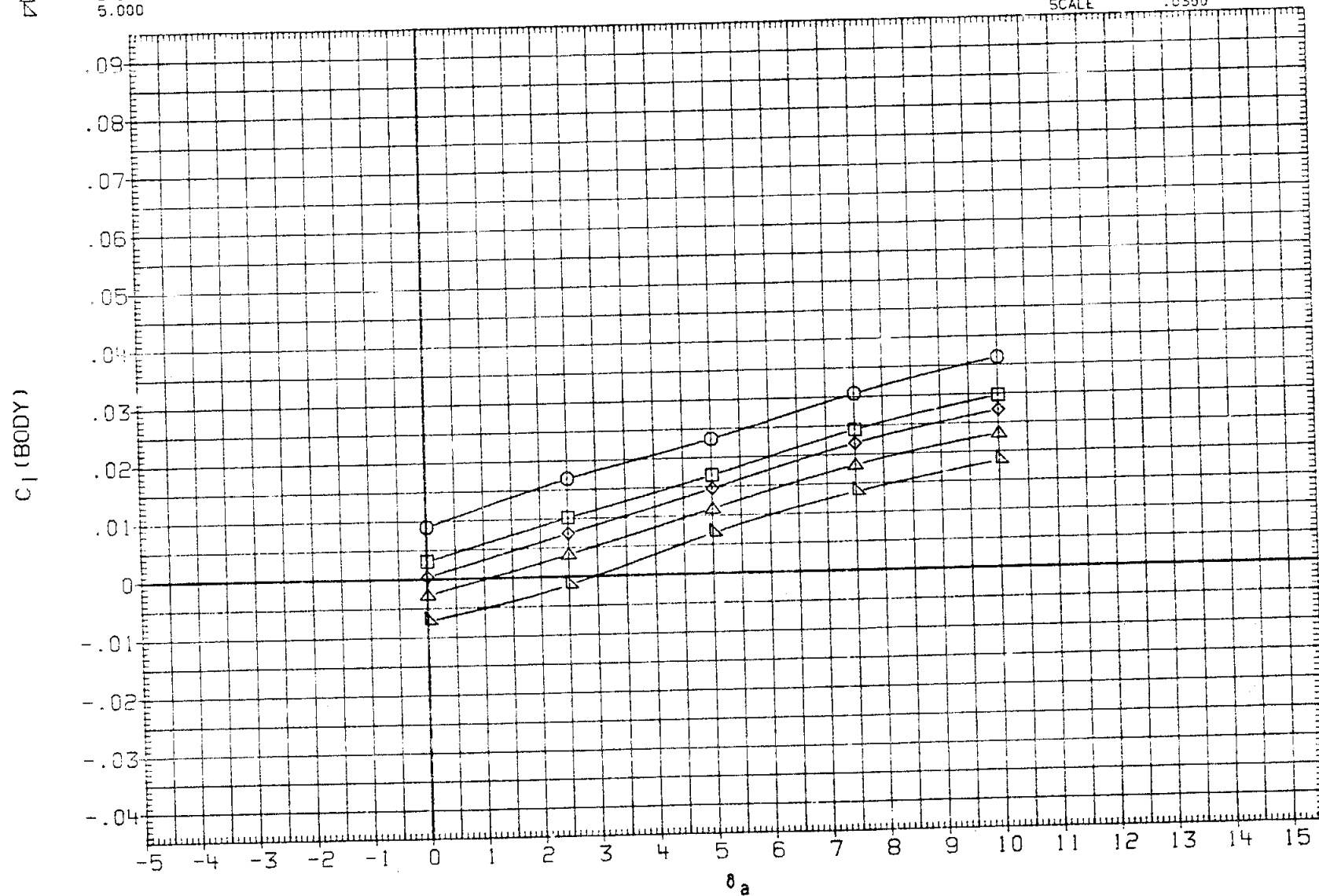


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	BETA	PARAMETRIC VALUES			
	-5.000	MACH	.900	ALPHA	16.000
	-2.000	ELEVON	.000	BDFLAP	-7.170
	.000				
	2.000				
5.000					

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

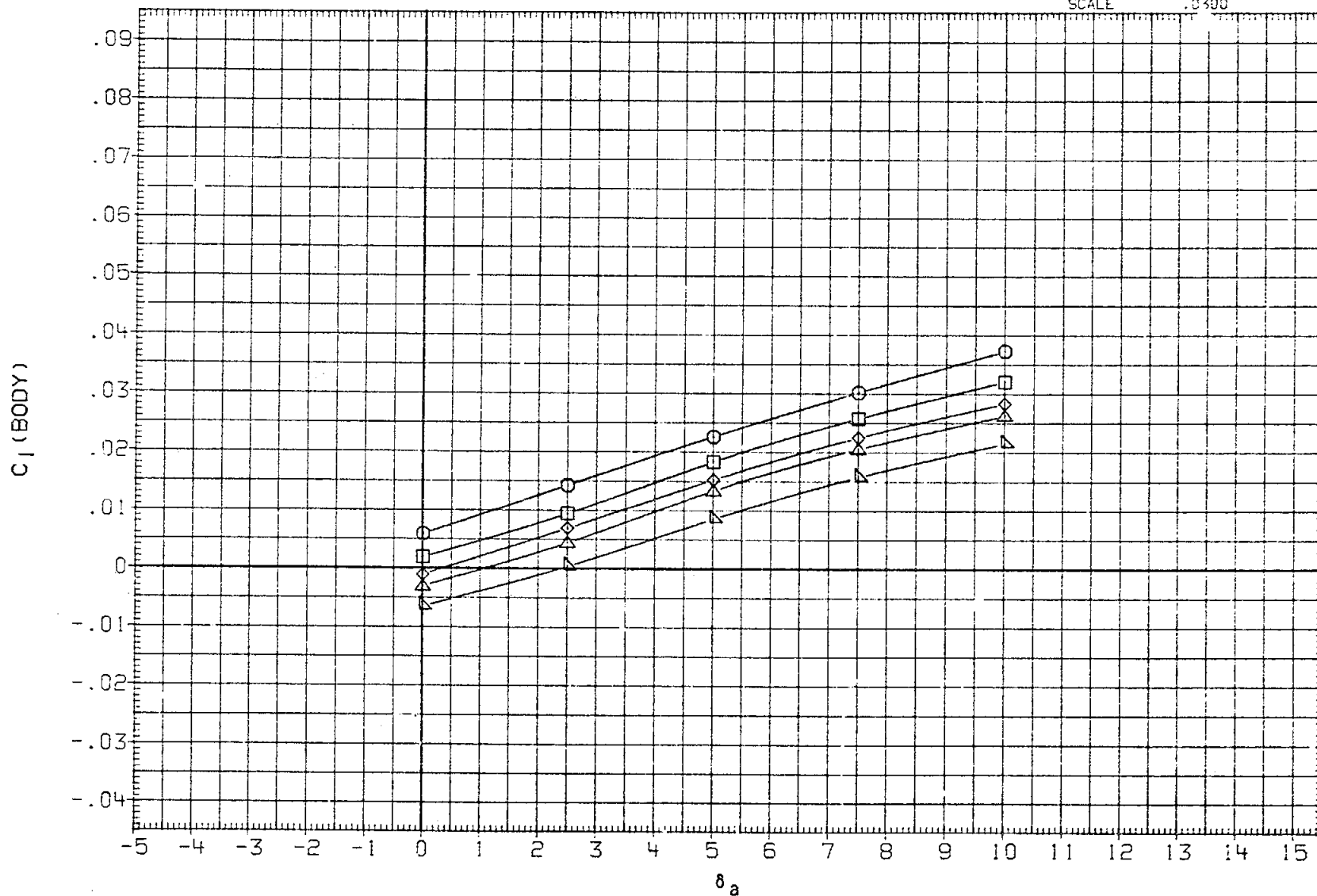


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL BETA PARAMETRIC VALUES

SYMBOL	BETA	MACH	ALPHA	BDFLAP
○	-5.000	.900	20.000	
□	-2.000	.000	-7.170	
◇	.000			
△	2.000			
▽	5.000			

REFERENCE INFORMATION

PARAMETER	VALUE	UNIT
SREF	2690.0000	SO. FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0000	

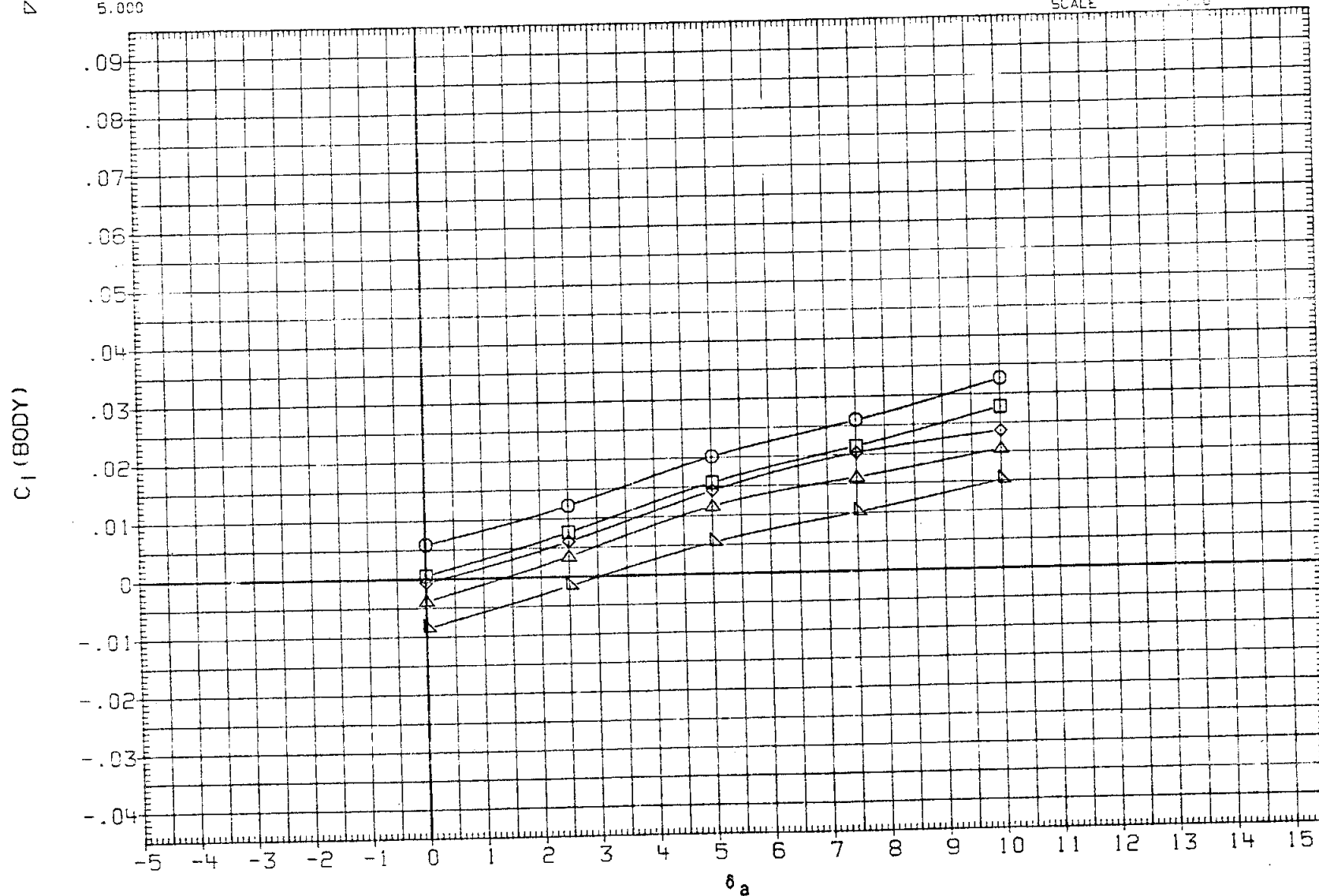


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	BETA	MACH	PARAMETRIC VALUES	ALPHA	BDFLAP
011041	-5.000	1.200		.000	
	-2.000	.000		-7.170	
	.000				
	2.000				
	5.000				

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

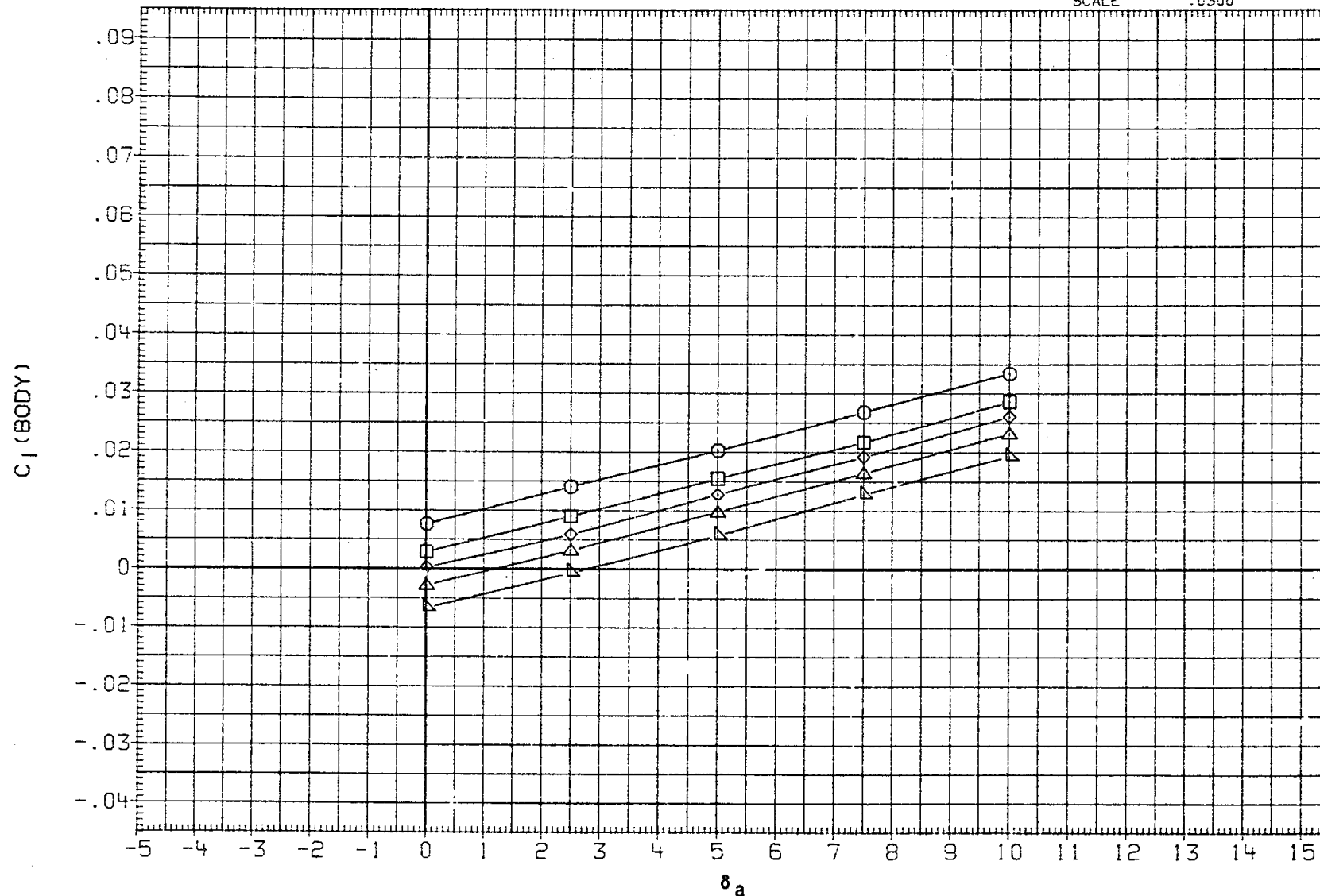


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL	PARAMETRIC VALUES			
	BETA	MACH	ALPHA	BDFLAP
○	-5.000		1.200	4.000
□	-2.000	ELEVON	.000	-7.170
◇	.000			
△	2.000			
	5.000			

REFERENCE INFORMATION		
SREF	2590.0000	50. FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XG
YMPP	.0000	IN. YG
ZMPP	375.0000	IN. ZG
SCALE	.0300	

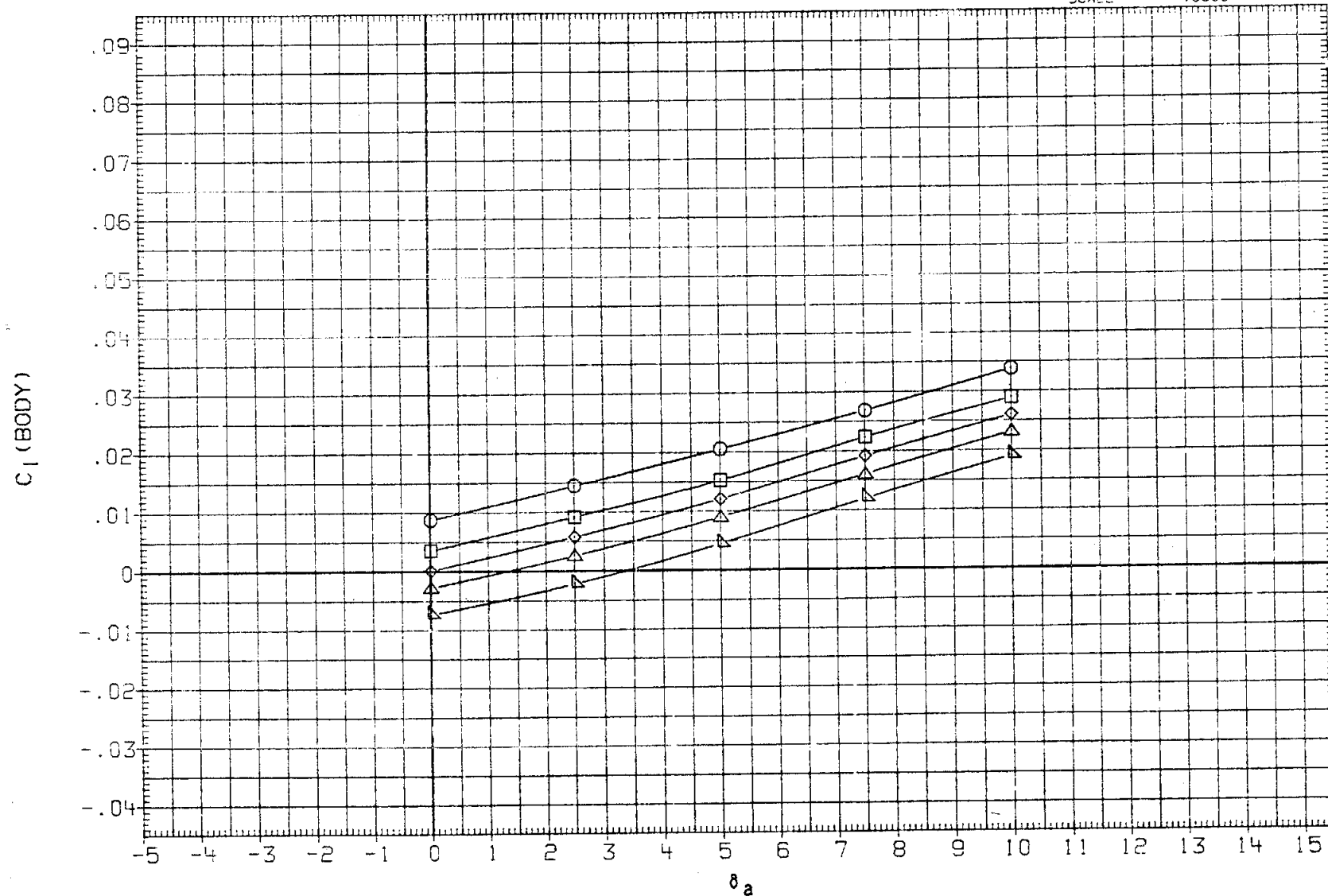


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	BETA	MACH	ELEVON	PARAMETRIC VALUES	ALPHA	BOFLAP
○	-5.000	1.200			8.000	
□	-2.000		.000		-7.170	
◇	.000					
△	2.000					
▽	5.000					

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

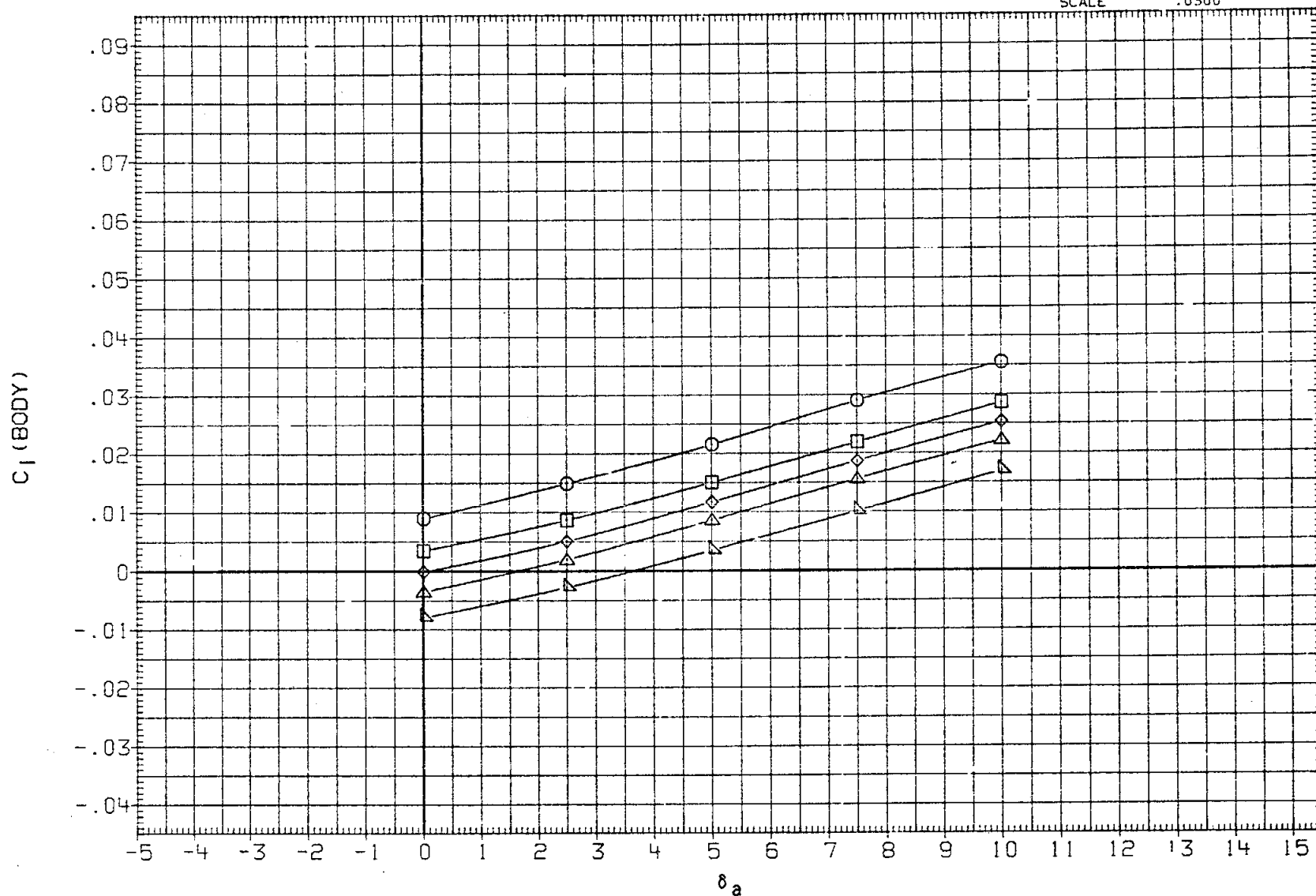


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL BETA PARAMETRIC VALUES

SYMBOL	BETA	MACH	ALPHA	BDFLAP
○	-5.000	1.200	12.000	-7.170
□	-2.000			
◇	.000			
△	2.000			
	5.000			

REFERENCE INFORMATION

REFERENCE INFORMATION	VALUE	UNIT
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

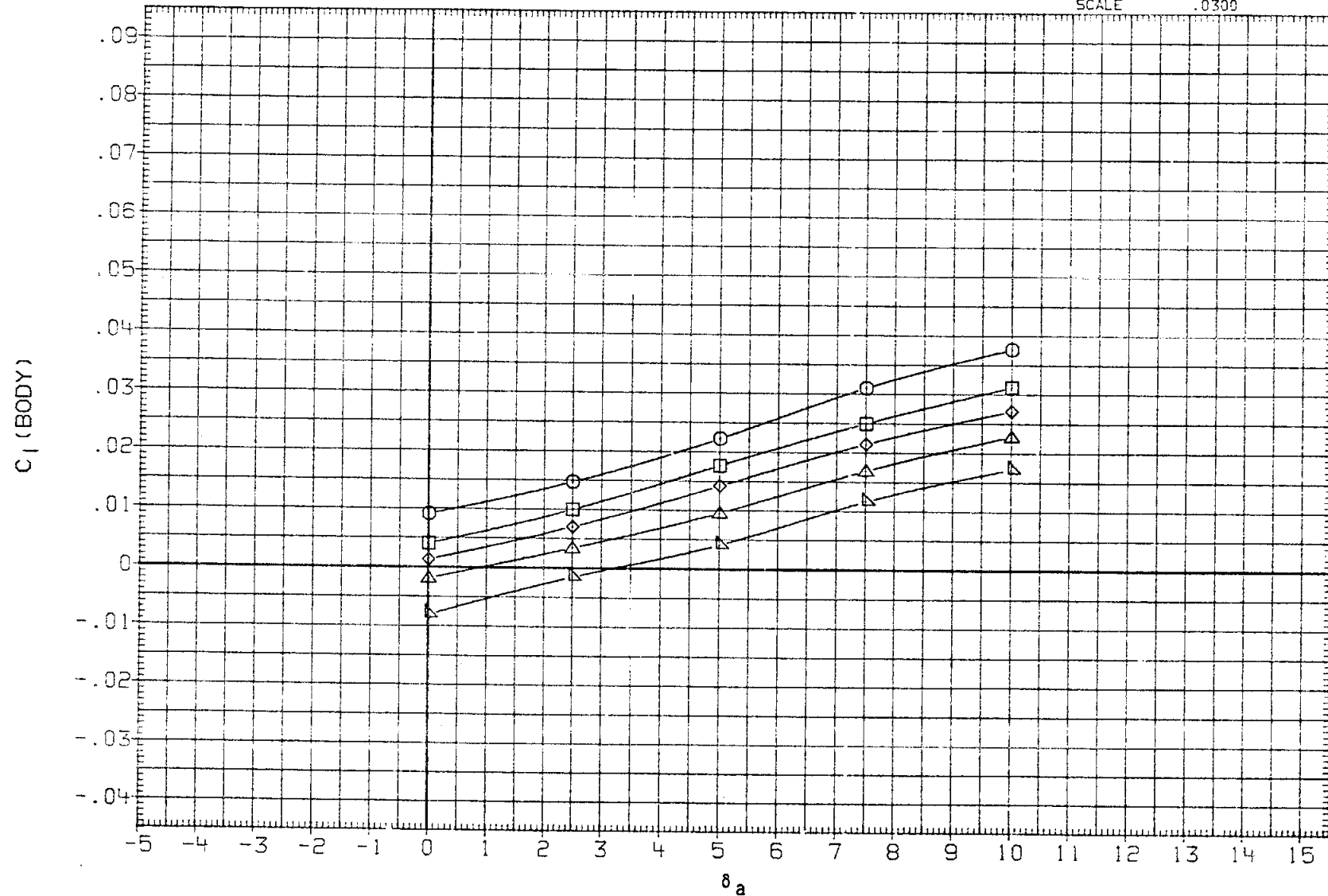


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON



(PE7813) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	BETA	MACH	ELEVON	PARAMETRIC VALUES	ALPHA	BD FLAP
○	-5.000	1.200	16.000			
□	-2.000	1.200	-7.170			
◇	.000	1.200				
△	2.000	1.200				
▽	5.000	1.200				

# REFERENCE INFORMATION

SREF	2690.0000	SQ. FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
XM RP	1076.6800	IN. X0
YM RP	.0000	IN. Y0
ZM RP	375.0000	IN. Z0
SCALE	.0300	

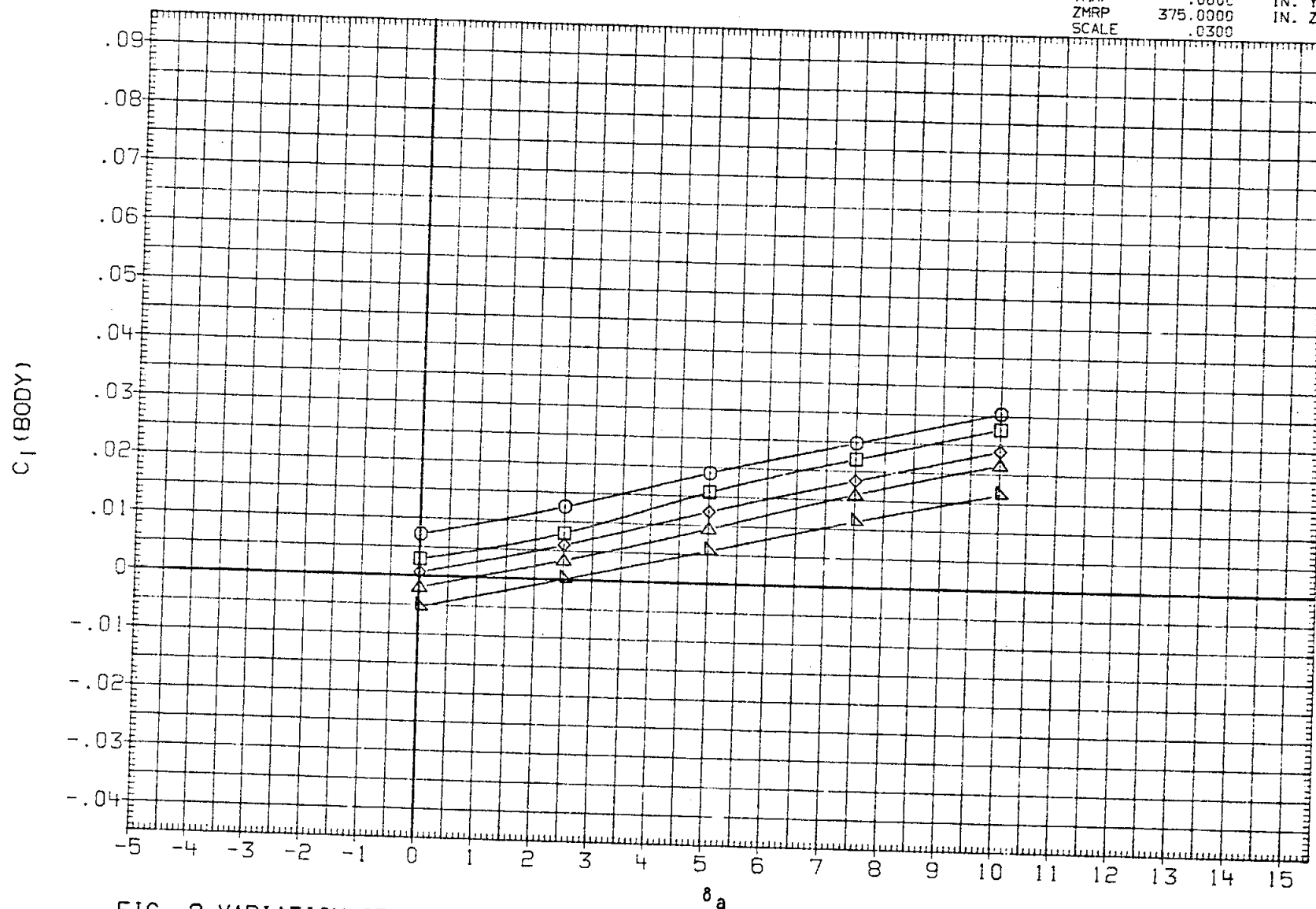


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE 7813) ARC 11-97-87-09H OA161 ORBITER  
 SYMBOL BETA PARAMETRIC VALUES  
 O -5.000 MACH 1.200 ALPHA 20.000  
 □ -2.000 ELEVON .000 BDFLAP -7.170  
 ◇ .000  
 △ 2.000  
 ▲ 5.000

REFERENCE INFORMATION  
 SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

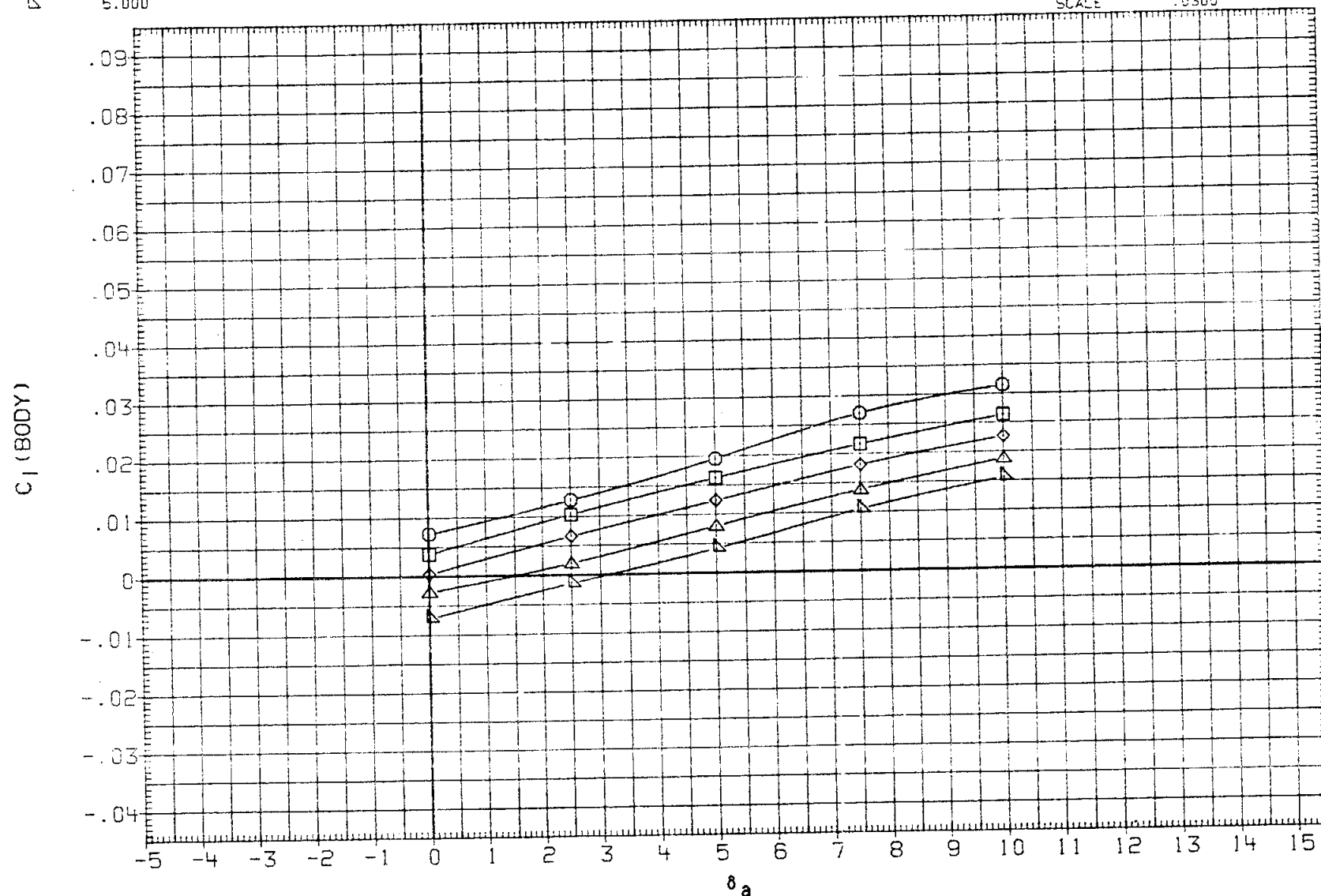


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 0A161 ORBITER

SYMBOL	BETA	MACH	PARAMETRIC VALUES	ALPHA	
○	-5.000	1.400		.000	
□	-2.000	1.000			
△	.000				
×	2.000				
▽	5.000				

REFERENCE INFORMATION		
SFREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

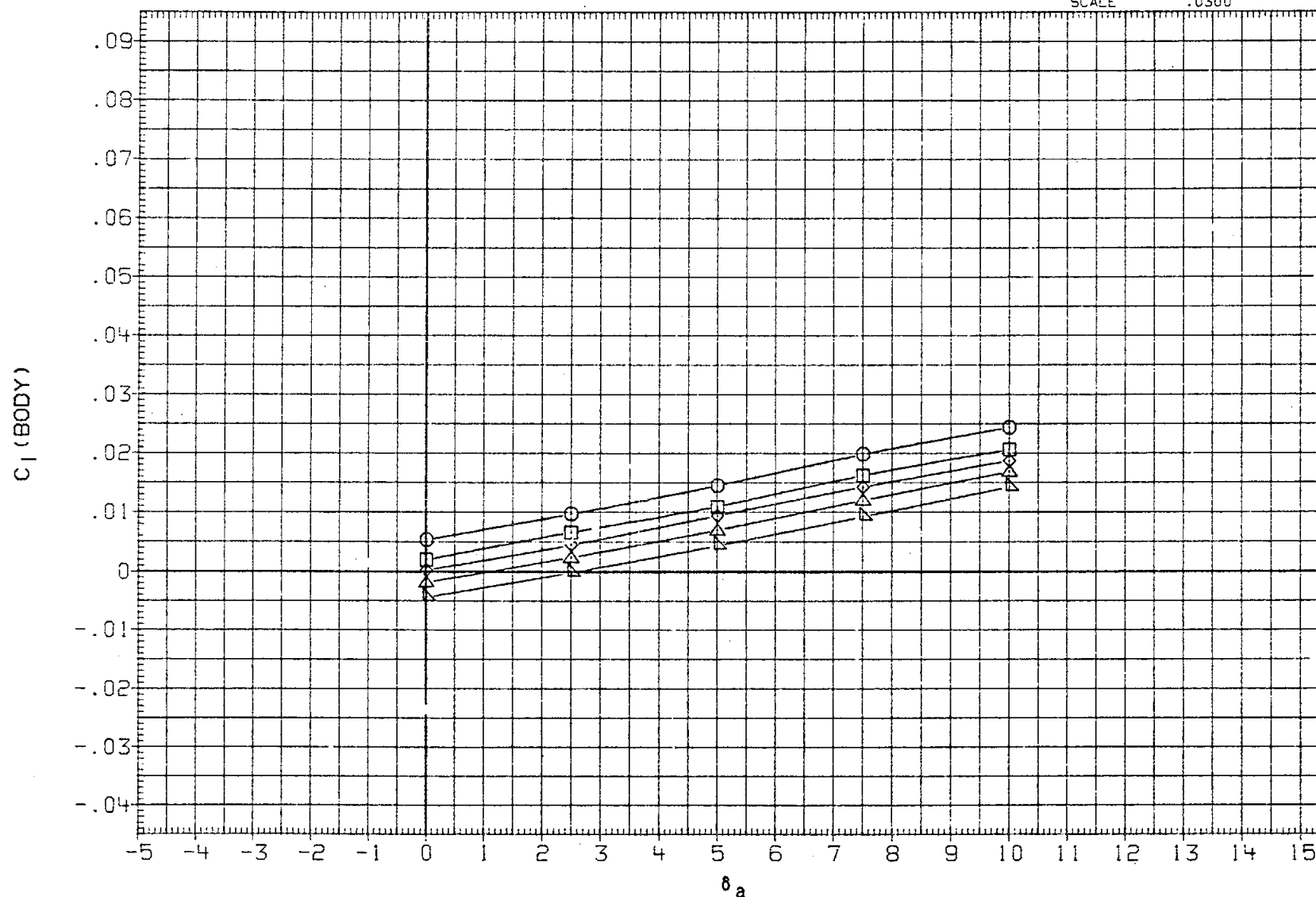


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL		PARAMETRIC VALUES			
BETA		MACH	1.400	ALPHA	4.000
-5.000		ELEVON	.000	BDFLAP	-7.170
-2.000					
.000					
2.000					
5.000					

REFERENCE INFORMATION		
SREF	2690.0000	SQ. FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRF	1076.6800	IN. XO
YMRF	.0000	IN. YO
ZMRF	375.0000	IN. ZO
SCALE	.0300	

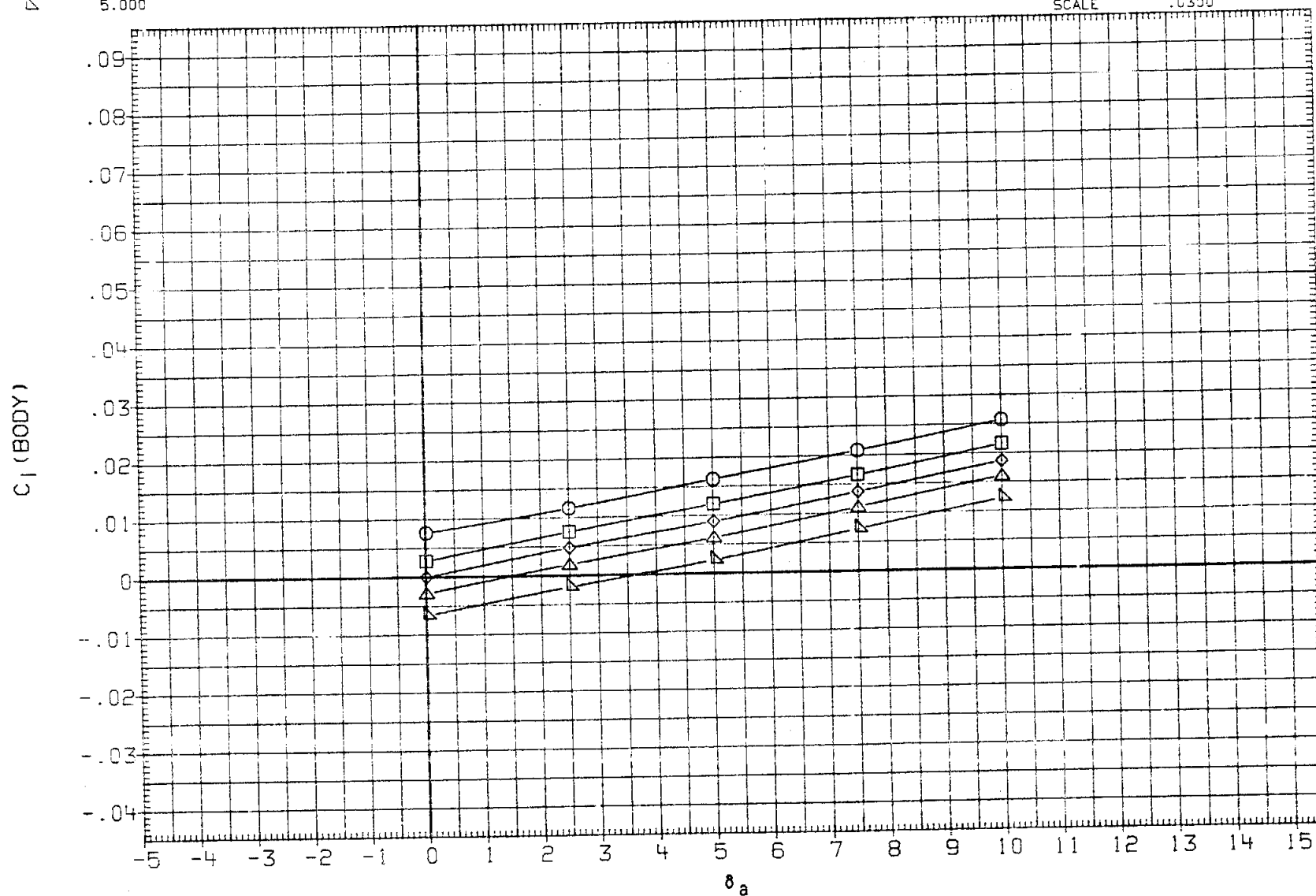


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 OA161 ORBITER

SYMBOL	BETA	MACH	ELEVON	PARAMETRIC VALUES	ALPHA	BDFLAP
C <sub>L</sub> (BODY)	-5.000			1.400	8.000	
	-2.000			.000	-7.170	
	.000					
	2.000					
	5.000					

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

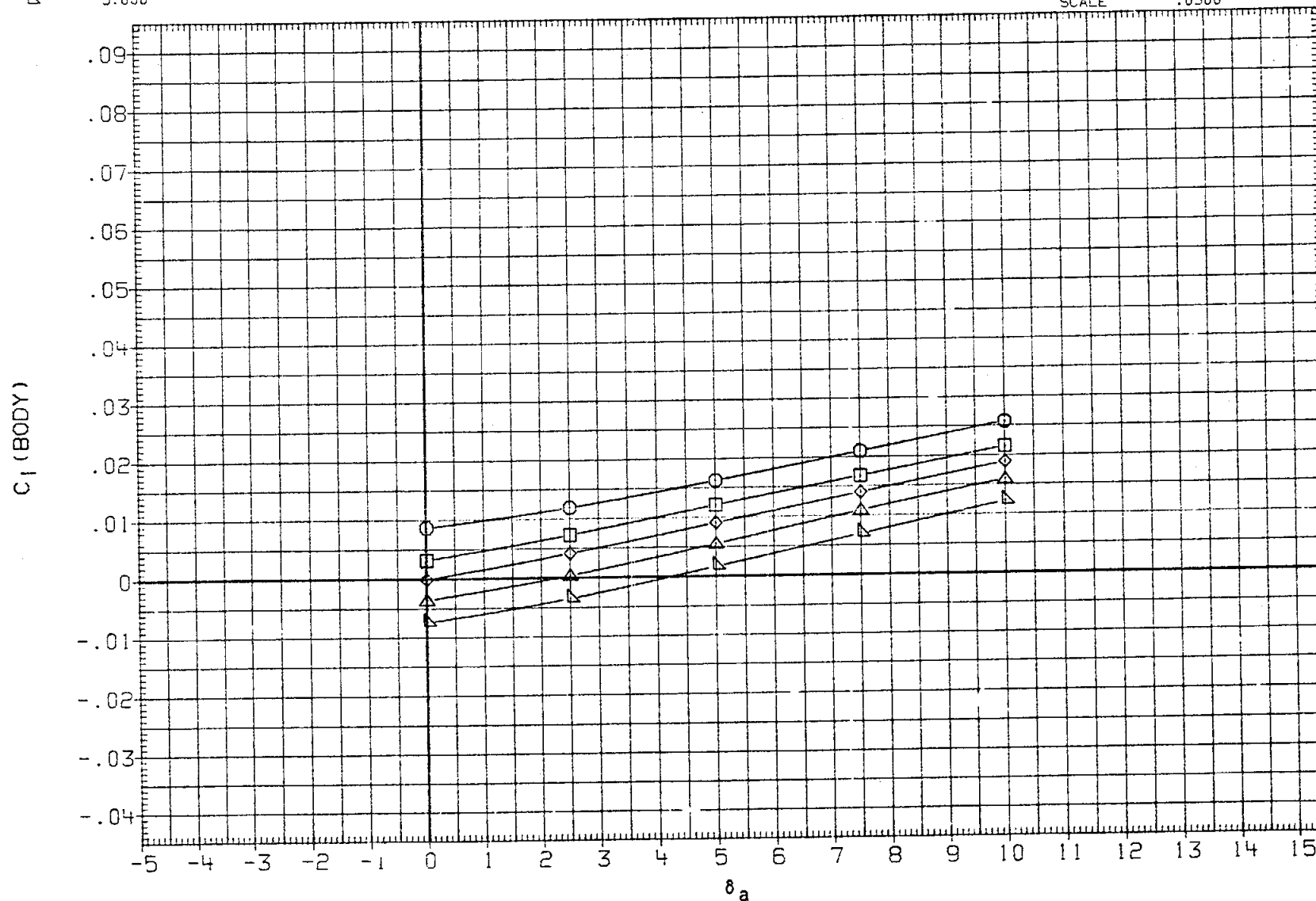


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL

BETA

PARAMETRIC VALUES

○  
□  
◇  
△

-5.000  
-2.000  
.000  
2.000  
5.000

MACH  
ELEVON

1.400  
.000

ALPHA  
BOFLAP

18.000  
-7.170

REFERENCE INFORMATION

SRF - 2690.0000 SQ.FT.  
LREF 474.9000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

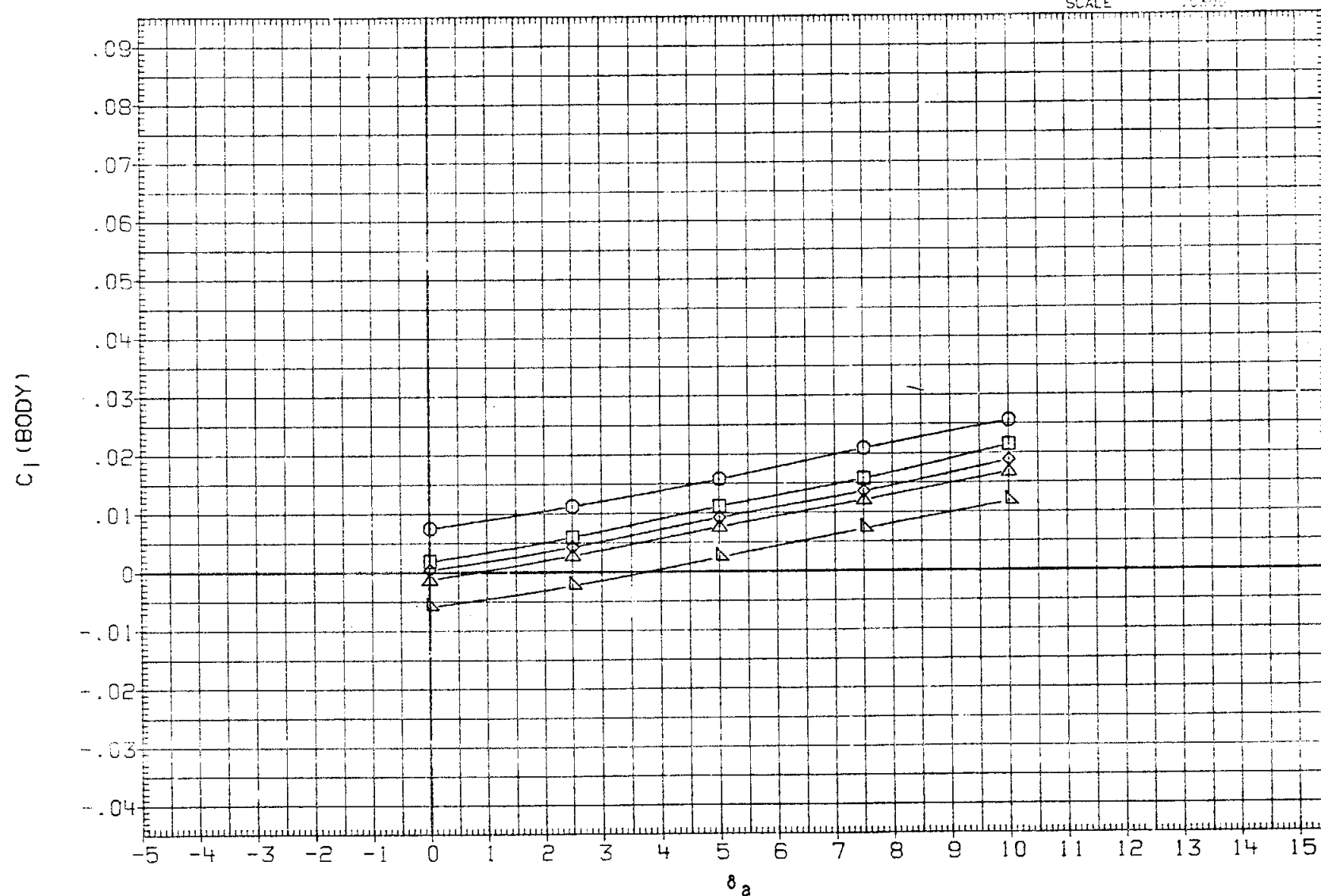


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

(PE7813) ARC 11-97-87-094 0A161 ORBITER

SYMBOL	BETA	MACH	PARAMETRIC VALUES	
○	-5.000	1.400	ALPHA	16.000
□	-2.000	.000	BDFLAP	-7.170
◇	.000			
△	2.000			
▽	5.000			

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

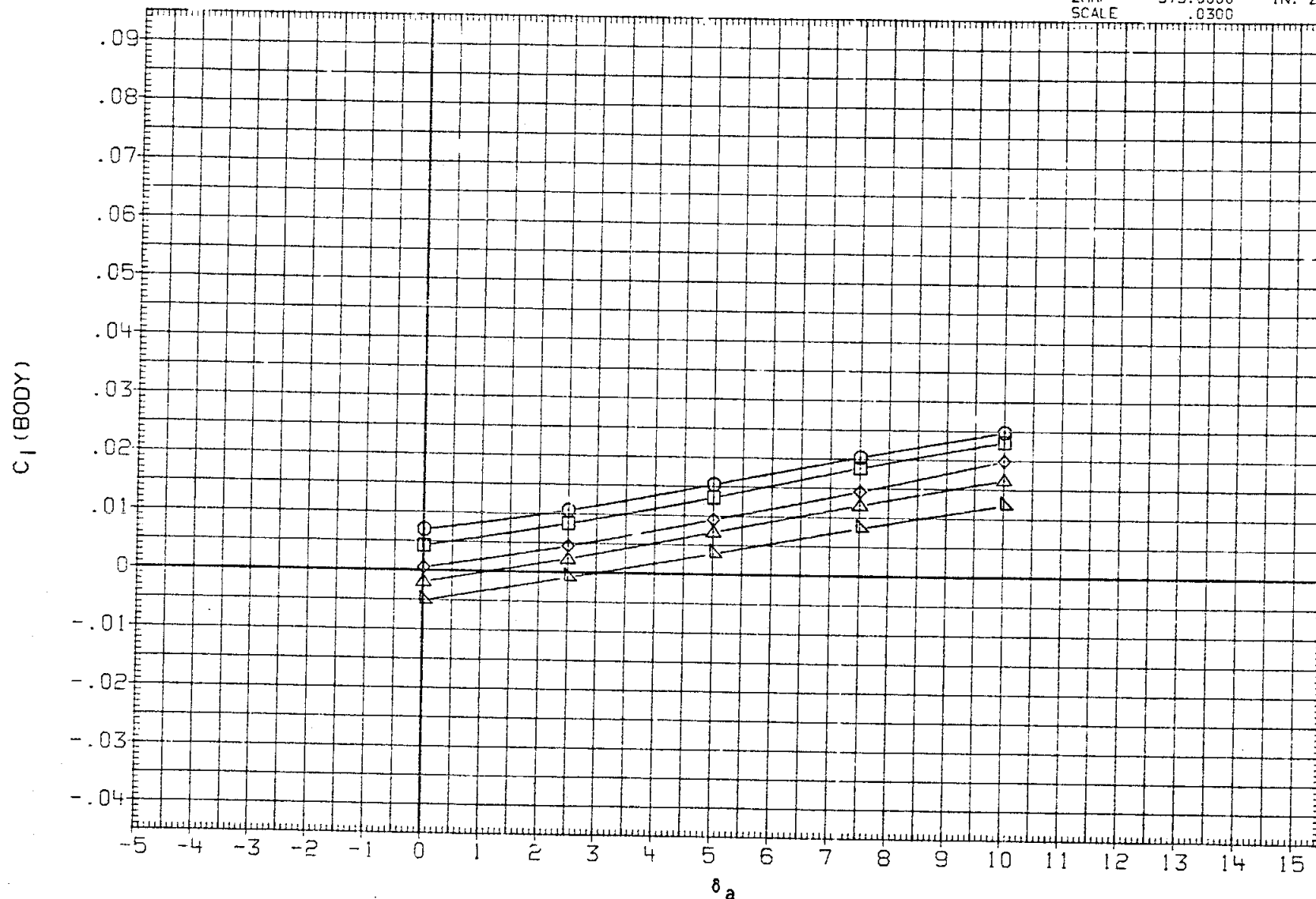


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON

SYMBOL

BETA

PARAMETRIC VALUES

0000  
0000  
0000  
0000  
0000

-5.000  
-2.000  
0.000  
2.000  
5.000

MACH  
ELEVON

1.400  
1.000

ALPHA  
BOFLAP

20.000  
-7.170

REFERENCE INFORMATION

SREF 2690.0000 SQ. FT.  
LREF 474.8000 IN.  
BREF 936.5800 IN.  
XMRP 1076.5800 IN. XC  
YMRP 0.0000 IN. YC  
ZMRP 375.0000 IN. ZC  
SCALE 0.0300

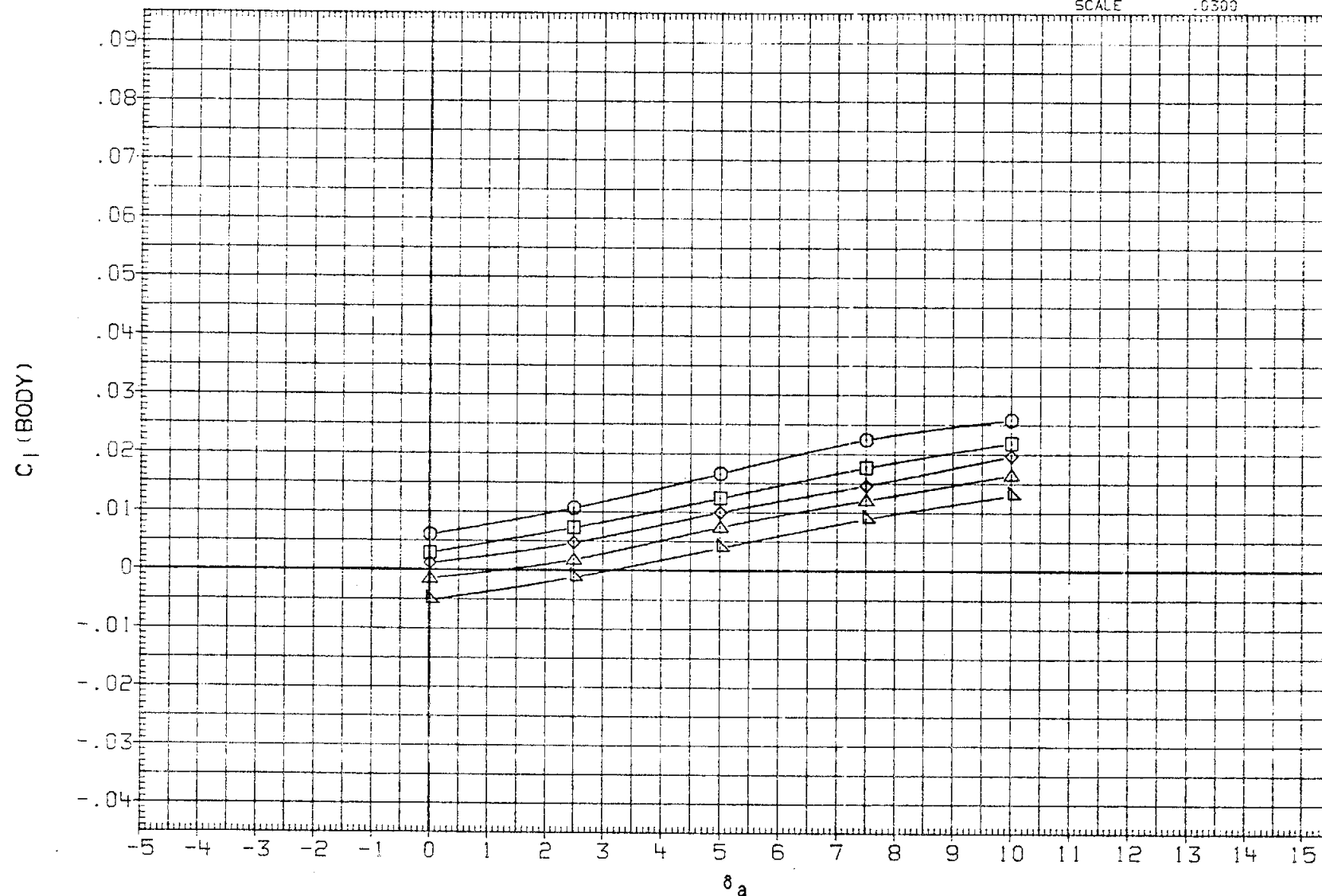


FIG. 9 VARIATION OF LATERAL DIRECTIONAL CHARACTERISTICS WITH AILERON



EE7X03 CONFIGURATION ARC 11-97-87-094 0A161 ORBITER - RAKES

SYMBOL	ALPHA	BETA	PARAMETRIC VALUES	ELEVON	
◇	.000	-5.000		.000	
□	12.000	.000	BDFLAP	-7.170	
◇	24.000				

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

LOCAL MACH NUMBER PTI OUTBOARD PSJ XO= 8.1 , M11

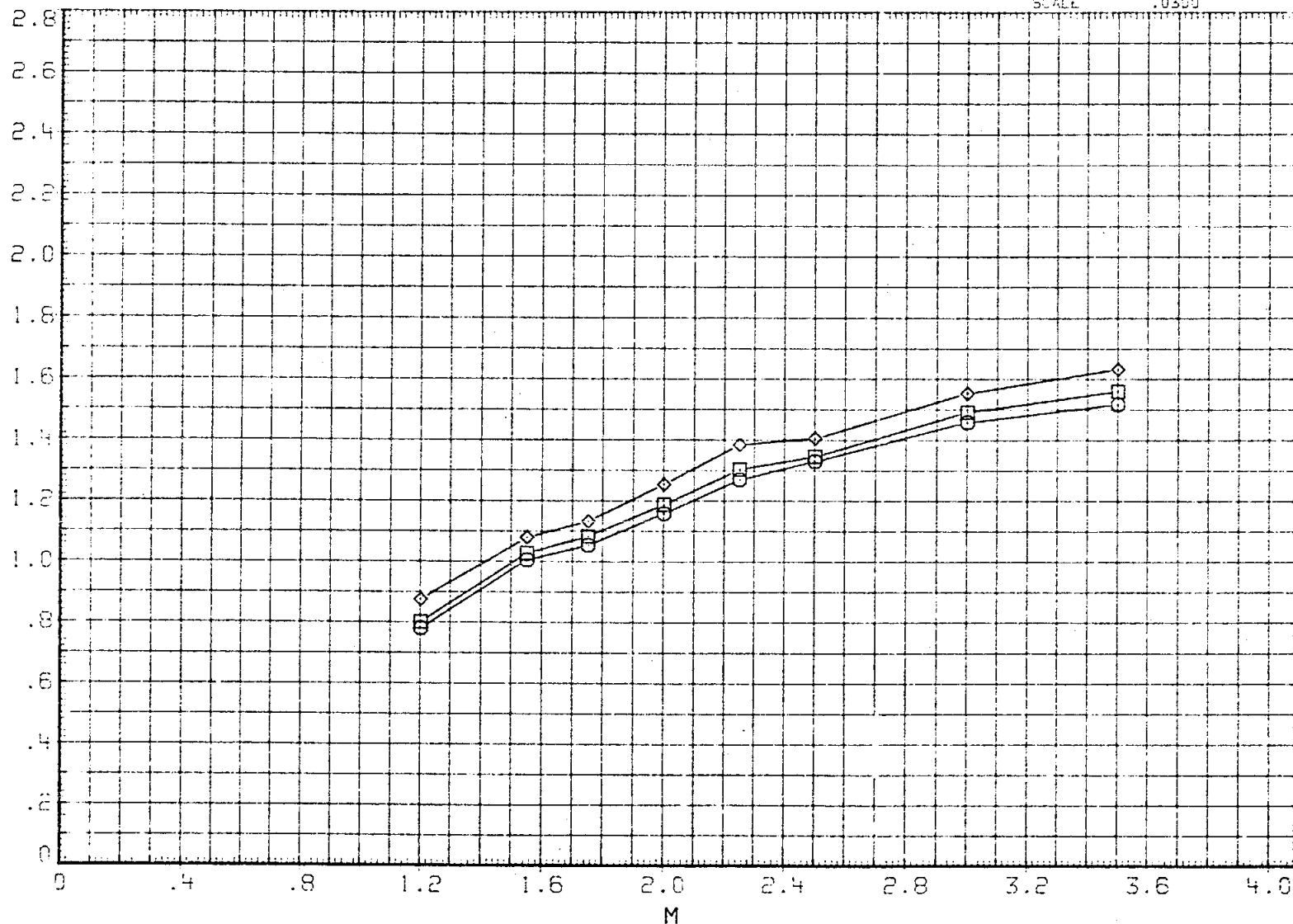


FIG. 10 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

CDTX02 CONFIGURATION ARC 11-87-87-09% OA161 ORBITER - RAKES  
 SYMBOL ALPHA PARAMETRIC VALUES  
 CDO .000 BETA -5.000 ELEVON .000  
 12.000 AILRON .000 BOFLAP -7.170  
 24.000

REFERENCE INFORMATION  
 SREF 2690.0000 90.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XYRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

LOCAL MACH NUMBER PT1 MIDDLE PSJ XO= 8.1 , M21

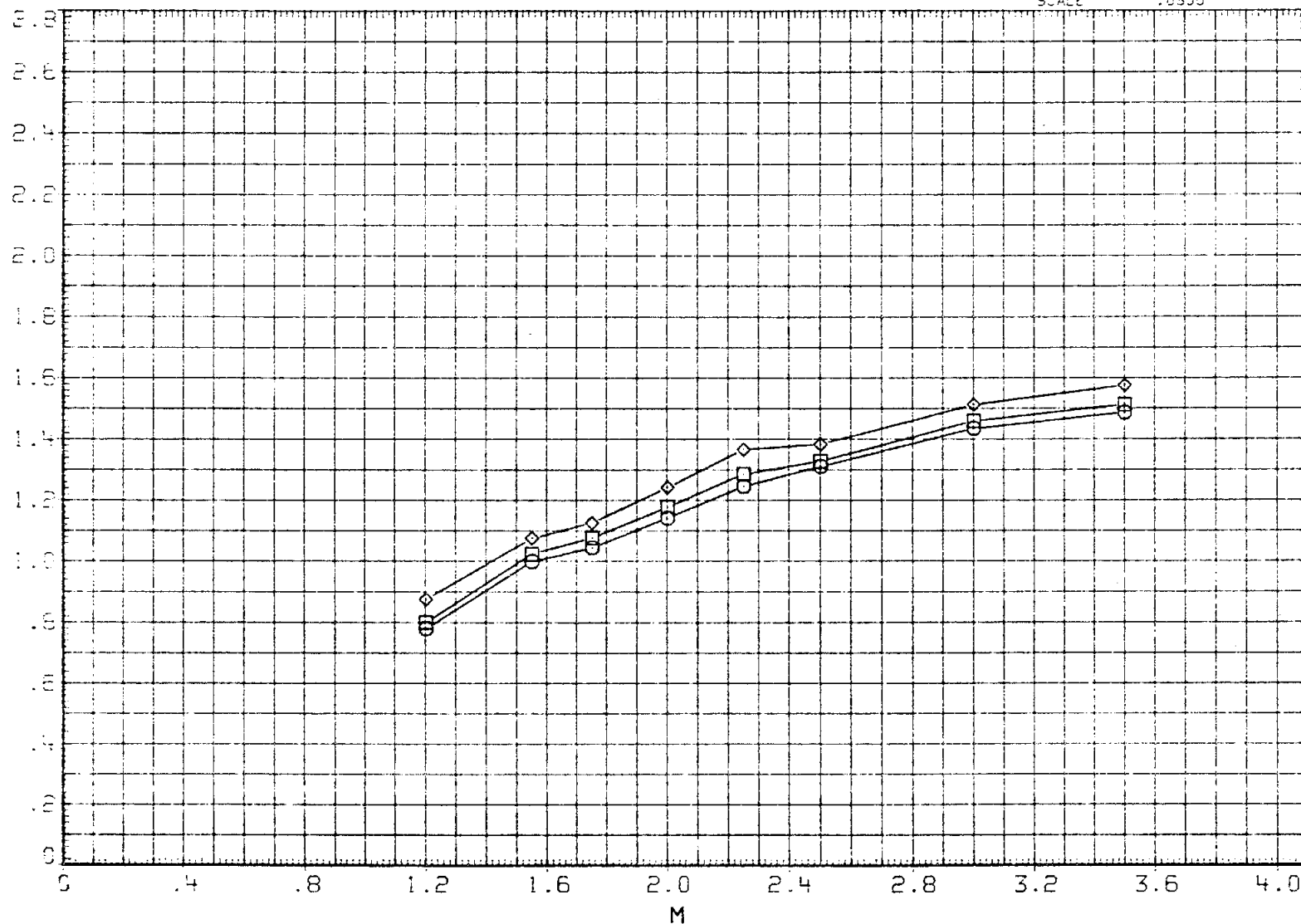


FIG. 10 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

EE7X03  
SYMBOL  
◇□○

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES  
PARAMETRIC VALUES  
ALPHA .000 BETA -5.000 ELEVON .000  
12.000 AILRON .000 BOFLAP -7.170  
24.000

REFERENCE INFORMATION  
SREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0333

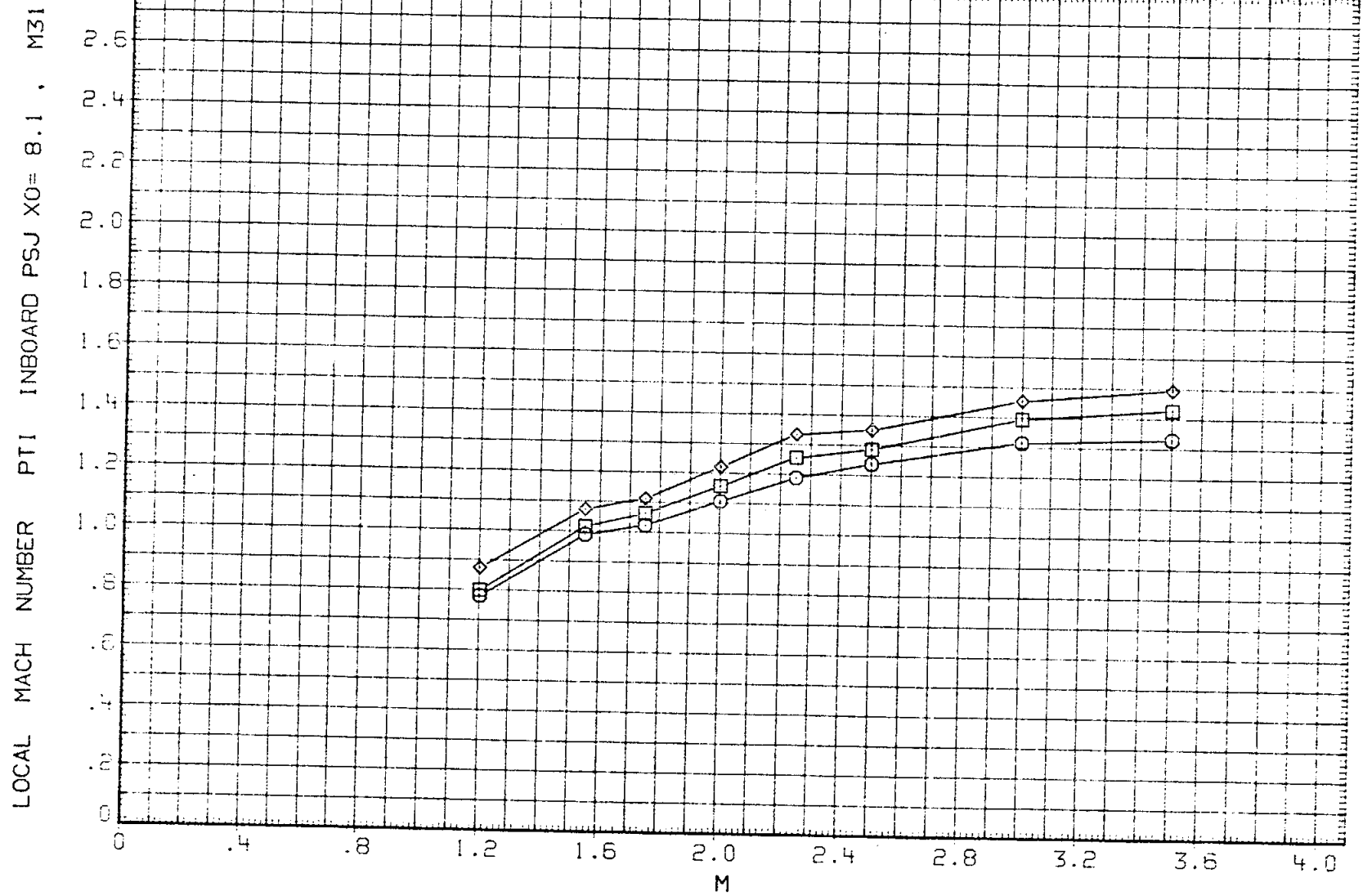


FIG. 10 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

EETX03  
SYMBOL

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER - RAKES  
PARAMETRIC VALUES  
ALPHA .000 BETA -5.000 ELEVON .000  
12.000 AILRON .000 BOFLAP -7.170  
24.000

REFERENCE INFORMATION  
SREF 2690.0000 SQ.FT.  
LREF -74.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. X0  
YMRP .0000 IN. Y0  
ZMRP 375.0000 IN. Z0  
SCALE .0000

LOCAL MACH NUMBER PT1 OUTBOARD PSJ X0=12.9 , M13

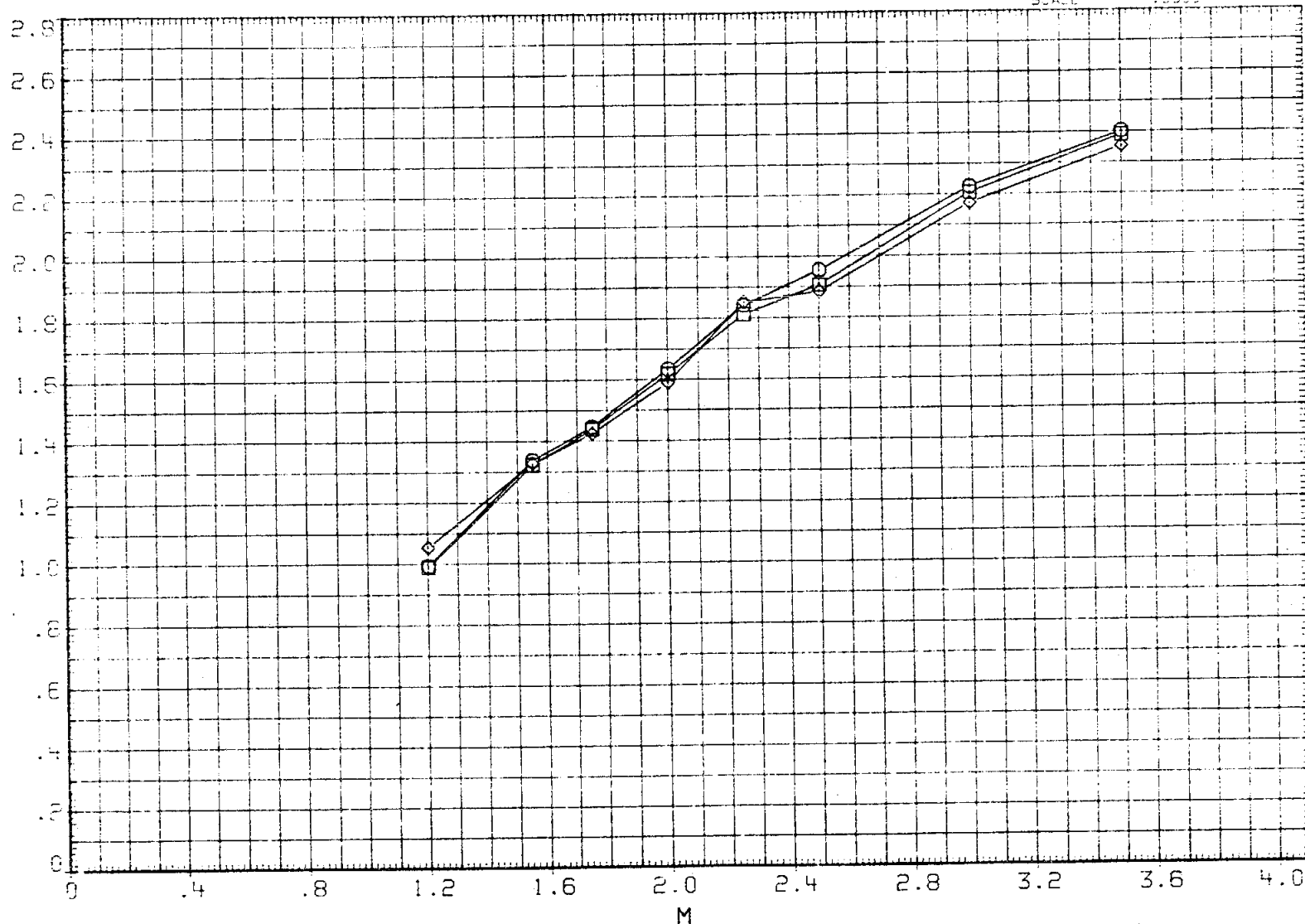


FIG. 10 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

EETX03 CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES  
 SYMBOL ALPHA PARAMETRIC VALUES  
 0.000 BETA -5.000 ELEVON .000  
 12.000 AIRLON .000 BOFLAP -7.170  
 24.000

REFERENCE INFORMATION  
 SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6900 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

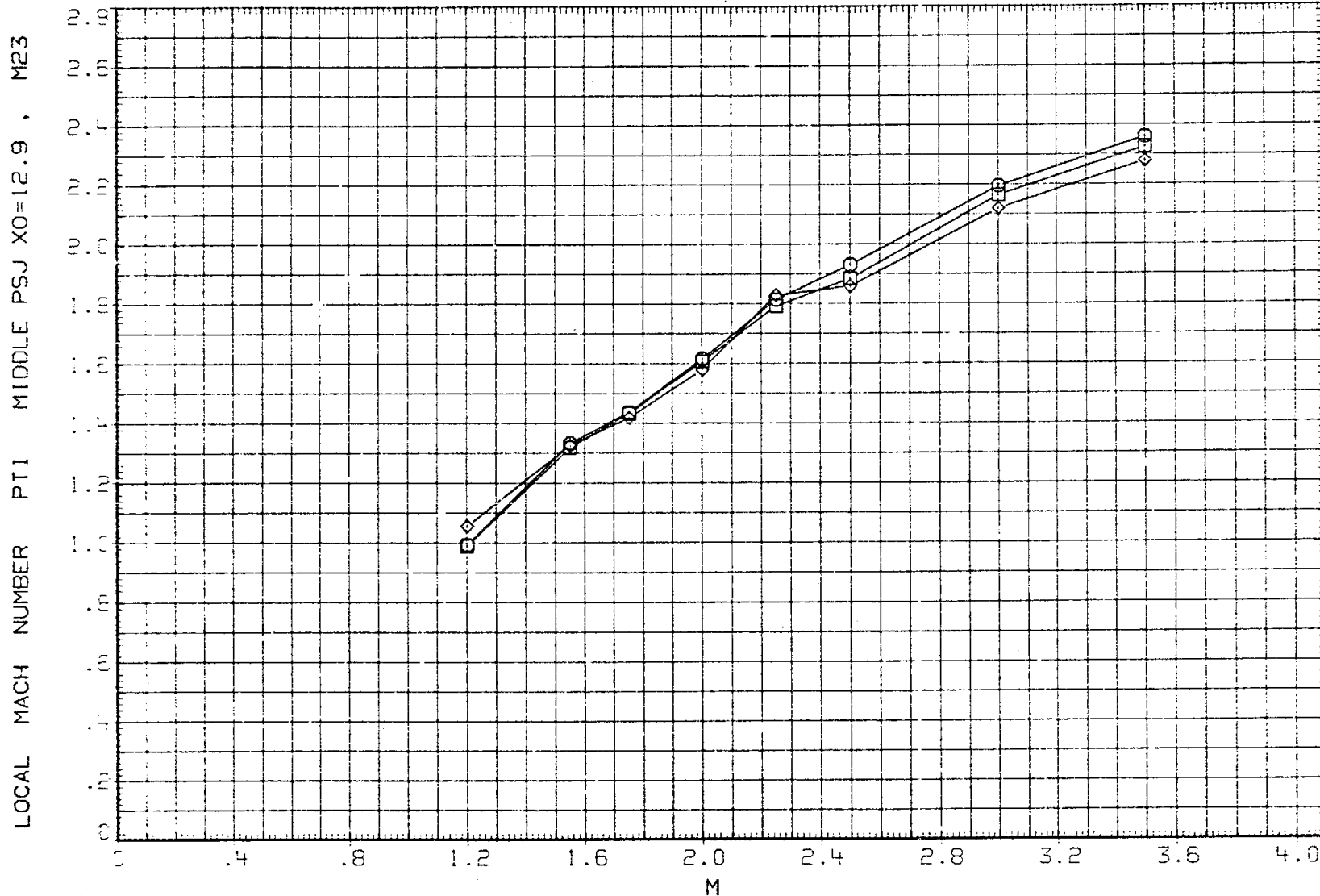


FIG. 10 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

EEEXOL  
SYMBOL  
C[1]O

CONFIGURATION APC 11-97 07-00H OARER ORBITER + RAKES  
PARAMETRIC VALUES  
ALPHA .000 BETA -5.000 ELEVON .000  
12.000 ATTORN .000 BDFLAP -7.170  
24.000

REFERENCE INFORMATION  
SREF 2690.0000 SQ.FT.  
LREF 474.9000 IN.  
BREF 938.6800 IN.  
XMPP 1076.6800 IN. XO  
YMPP .0000 IN. YO  
ZMPP 375.0000 IN. ZO  
SCALE .0200

LOCAL MACH NUMBER PT1 INBOARD PSJ XO=12.9 , M33

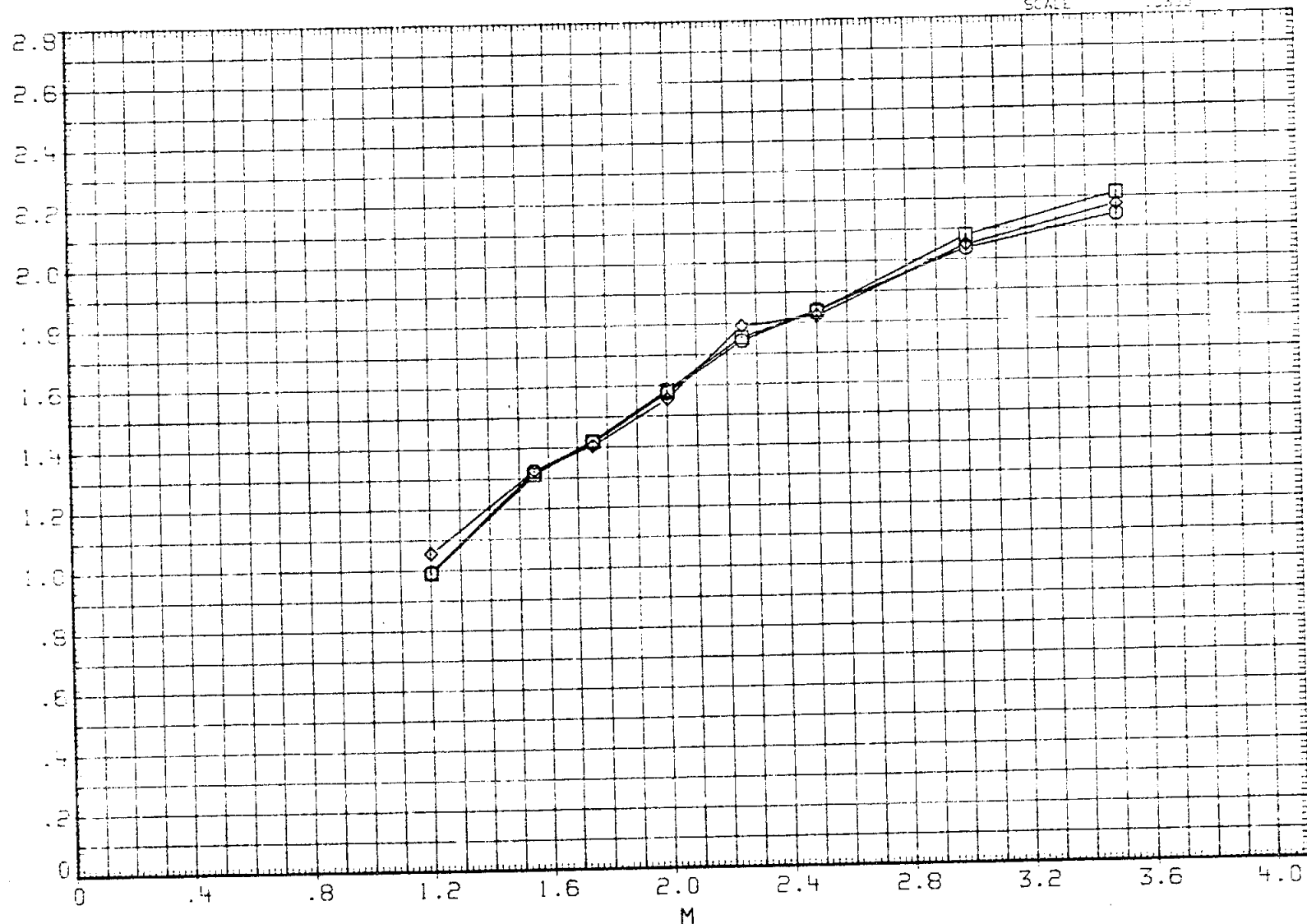


FIG. 10 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

EE7X05  
SYMBOL

□  
◇

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

PARAMETRIC VALUES			
ALPHA	BETA	ELEVON	
.000	.000	.000	.000
12.000	AILRON	SDFLAP	-7.170
24.000			

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	575.0000	IN. ZO
SCALE	.0300	

LOCAL MACH NUMBER PT1 OUTBOARD PSJ XO= 8.1 . M11

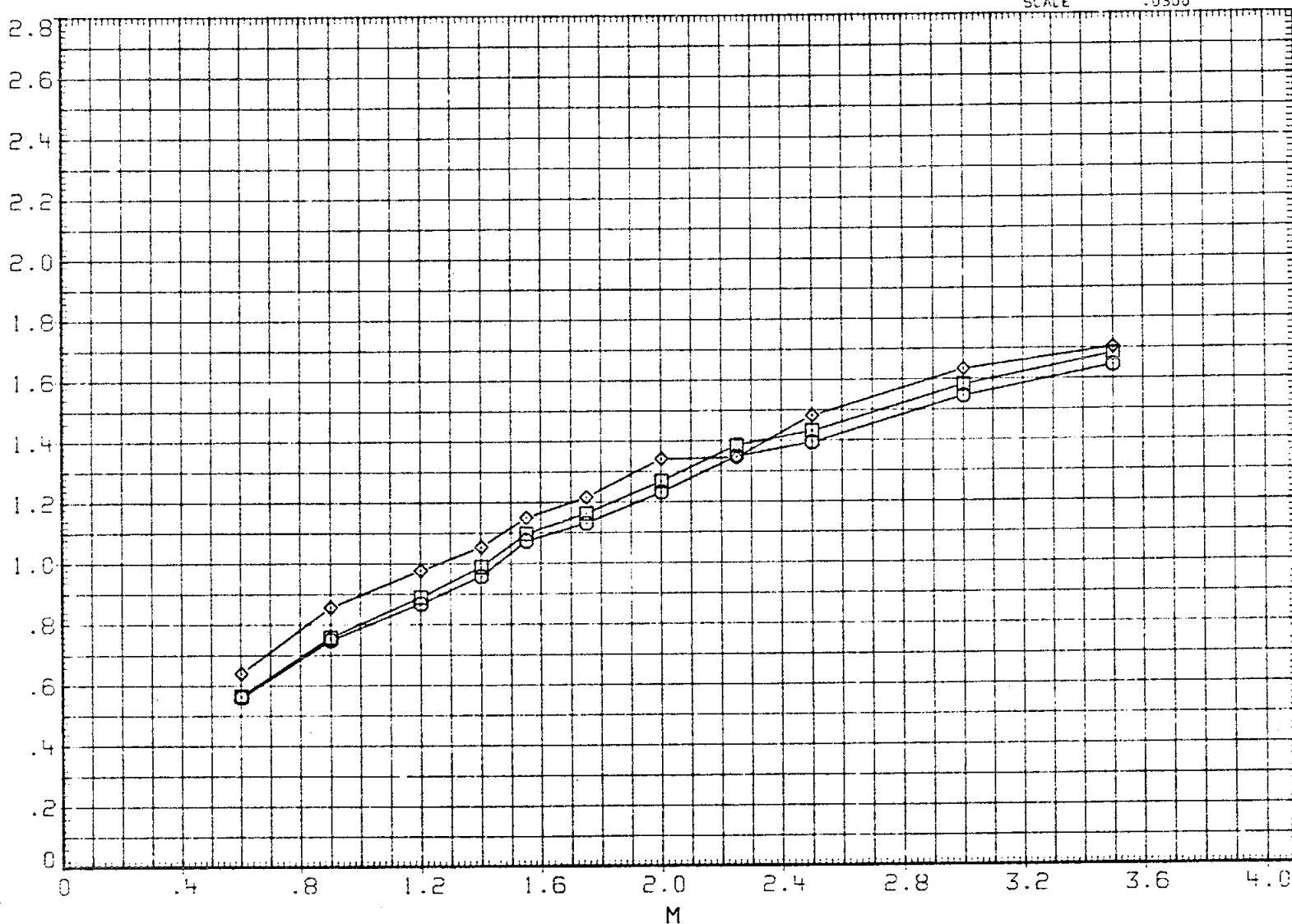


FIG. 10 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

EE7X05  
SYMBOL

CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES  
PARAMETRIC VALUES  
ALPHA .000 BETA .000 ELEVON .000  
12.000 AILERON .000 BOFLAP -7.170  
24.000

REFERENCE INFORMATION  
SREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMPP 1076.6800 IN. XO  
YMPP .0000 IN. YO  
ZMPP 375.0000 IN. ZO  
SCALE .9330

LOCAL MACH NUMBER PT1 MIDDLE PSJ XO= 8.1 . M21

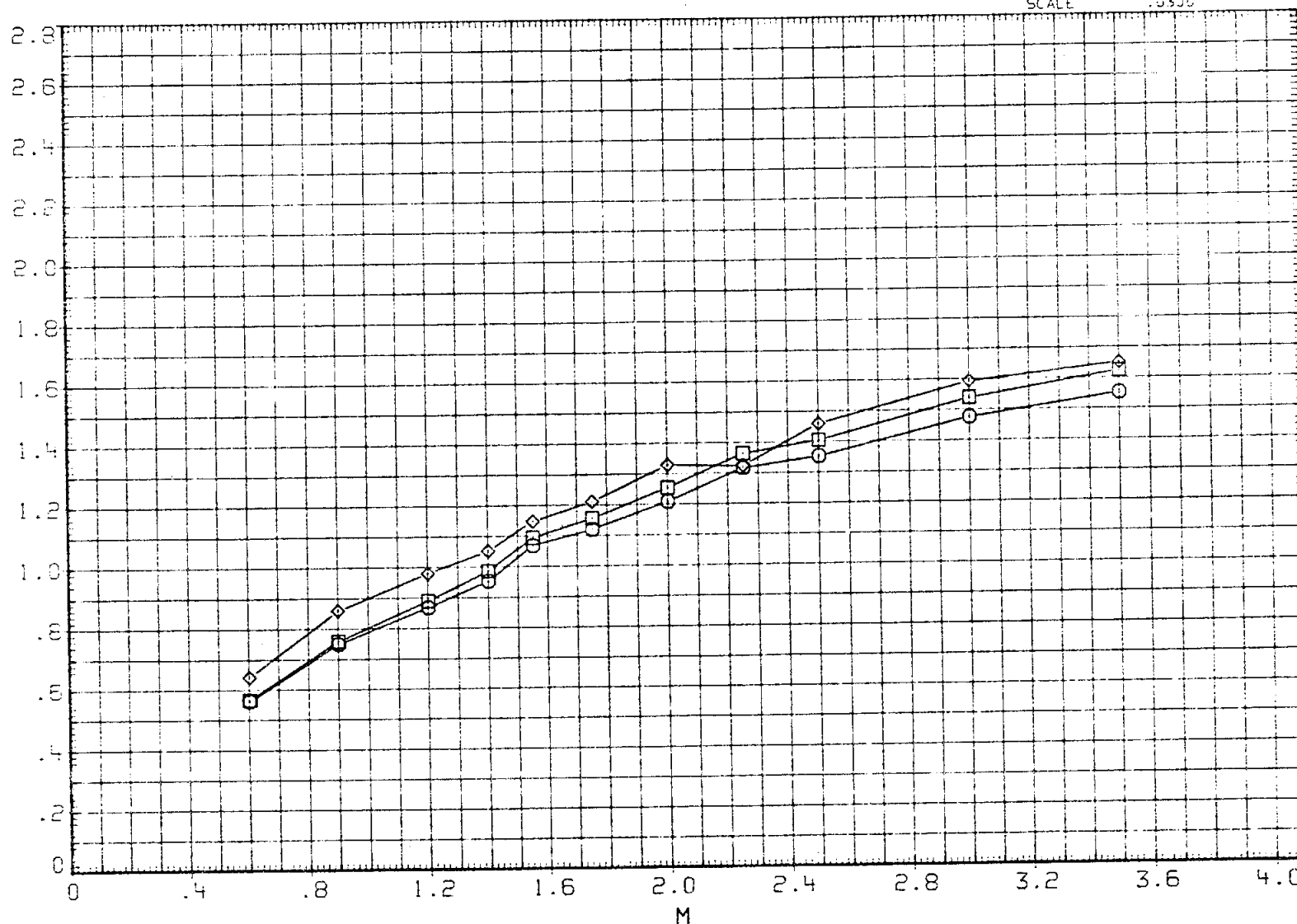


FIG. 10 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE



EE7X05  
SYMBOL

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

PARAMETRIC VALUES				
ALPHA	BETA	.000	ELEVON	.000
12.000	AILRON	.000	BDFLAP	-7.170
24.000				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

LOCAL MACH NUMBER PTI INBOARD PSJ XO= 8.1 , M31

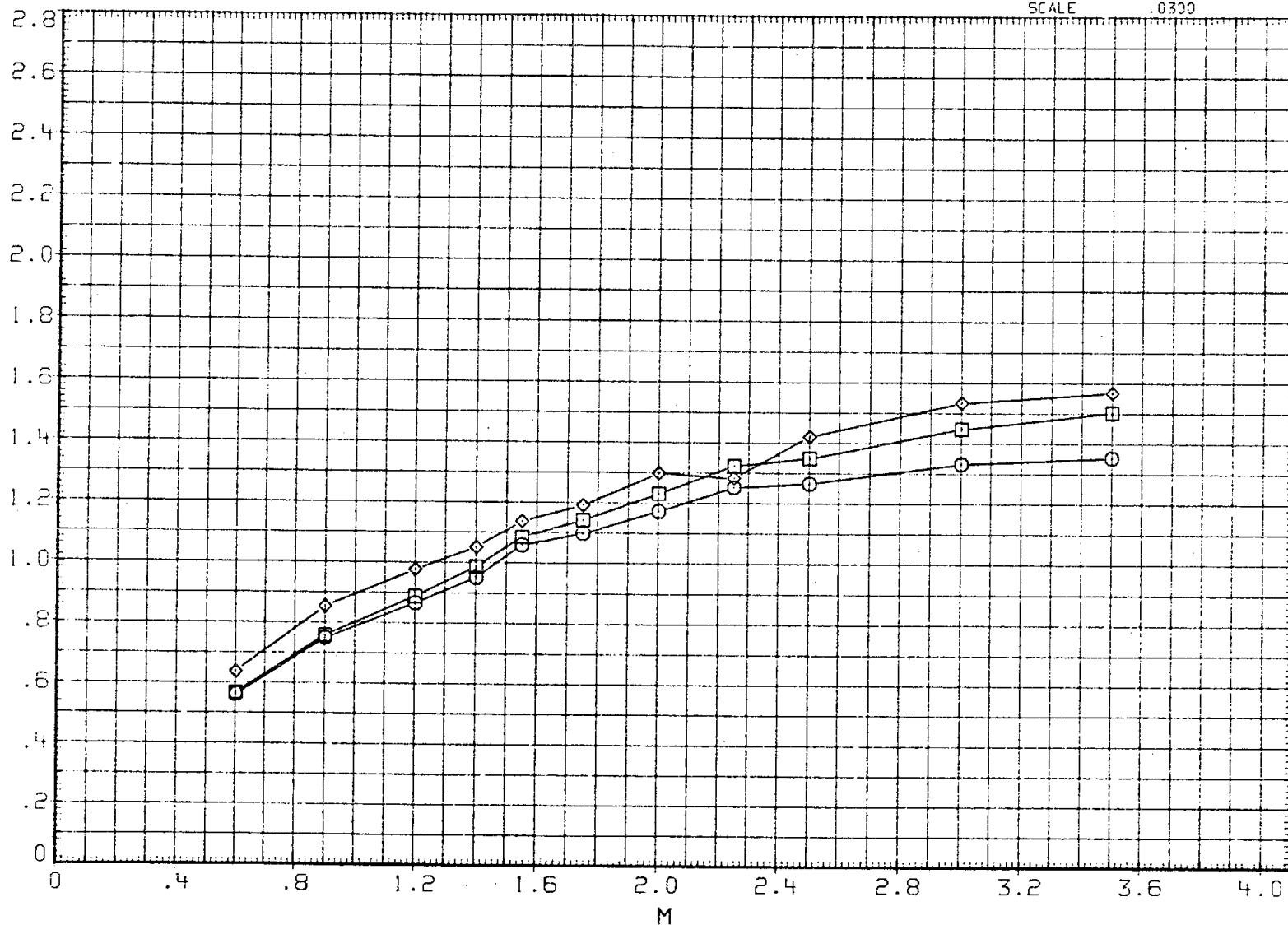


FIG. 10 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

EE7X05  
SYMBOL

CONFIGURATION: ARD 11-97-87-094 DATE: ORBITER + RAKES  
PARAMETRIC VALUES  
ALPHA .000 BETA .000 ELEVON .000  
12.000 AILERON .000 BDFLAP -7.170  
24.000

REFERENCE INFORMATION  
SREF 2690.0000 SQ. FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMPP 1076.6800 IN. XO  
YMPP .0000 IN. YO  
ZMPP 375.0000 IN. ZO  
SCALE .0300

LOCAL MACH NUMBER PTI OUTBOARD PSJ XO=12.9 , M13

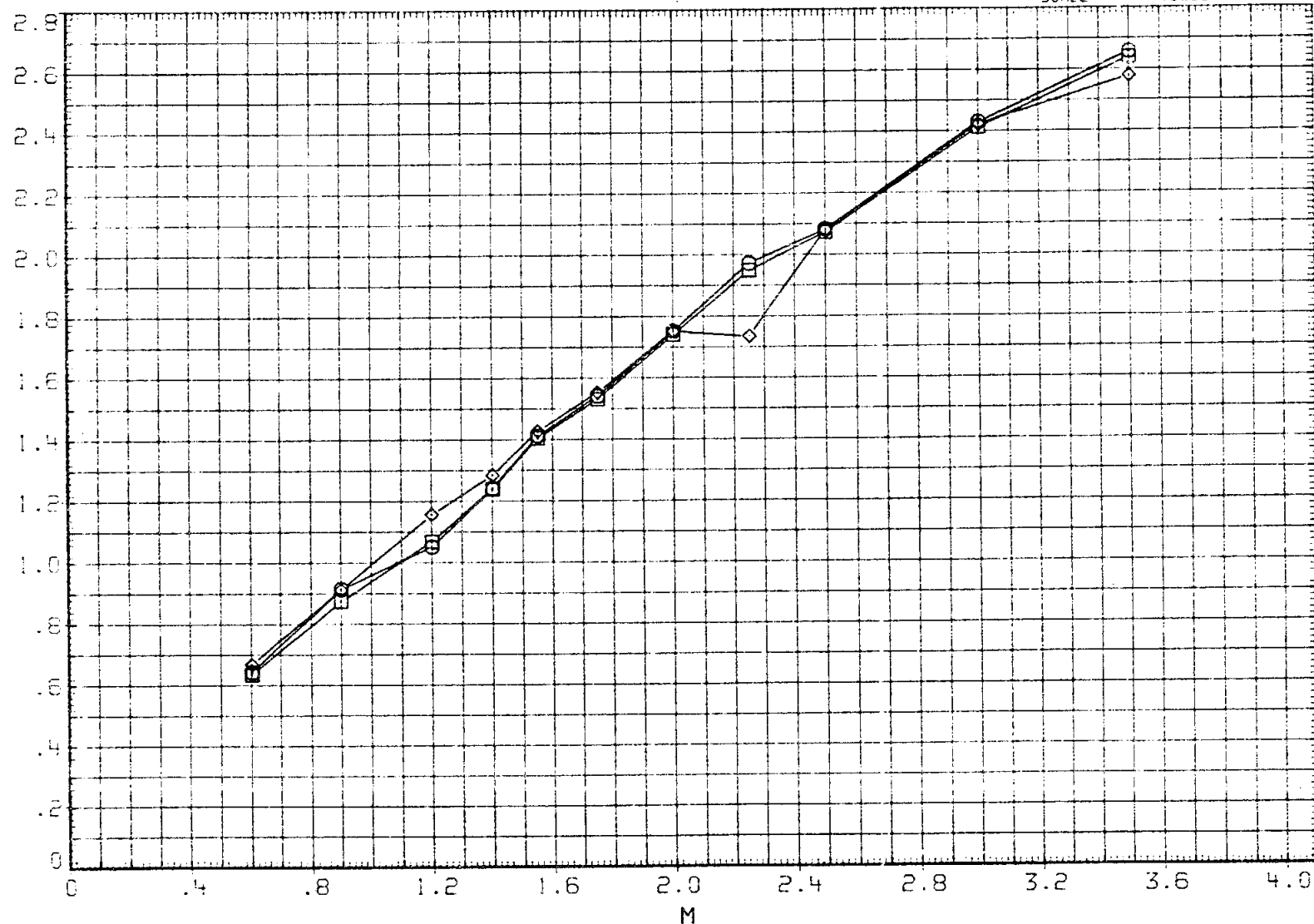


FIG. 10 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

EE7X05 CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

SYMBOL	ALPHA	PARAMETRIC VALUES			
◇	.000	BETA	.000	ELEVON	.000
	12.000	AILRON	.000	BDFLAP	-7.170
	24.000				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0900	IN. ZO
SCALE	.0300	

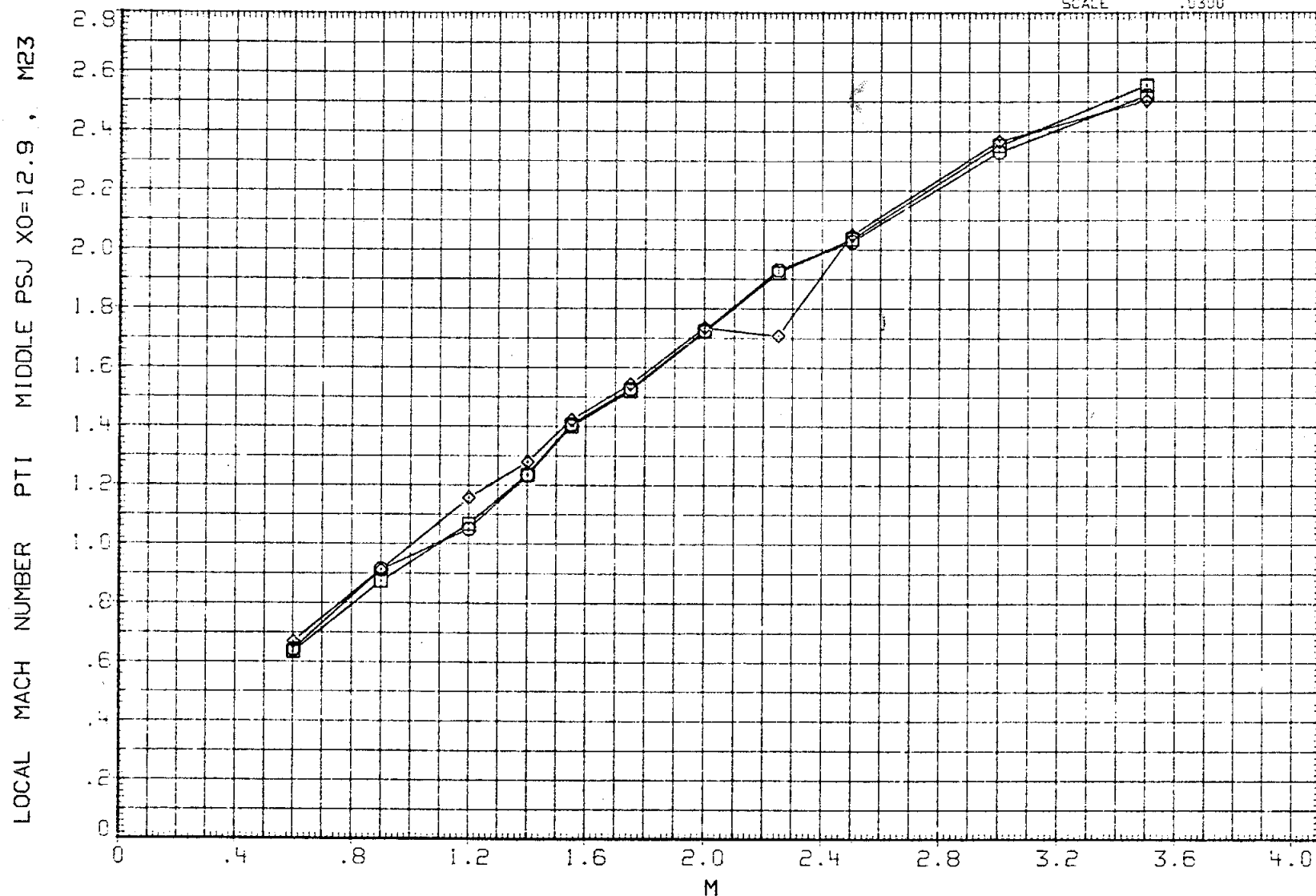


FIG. 10 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

SYMBOL

PARAMETRIC VALUES				
ALPHA	BETA	ELEVON		
.000	.000	.000		
12.000	AILRON	BOFLAP	-7.170	
24.000				

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	479.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

LOCAL MACH NUMBER PTI INBOARD PSJ XO=12.9 , M33

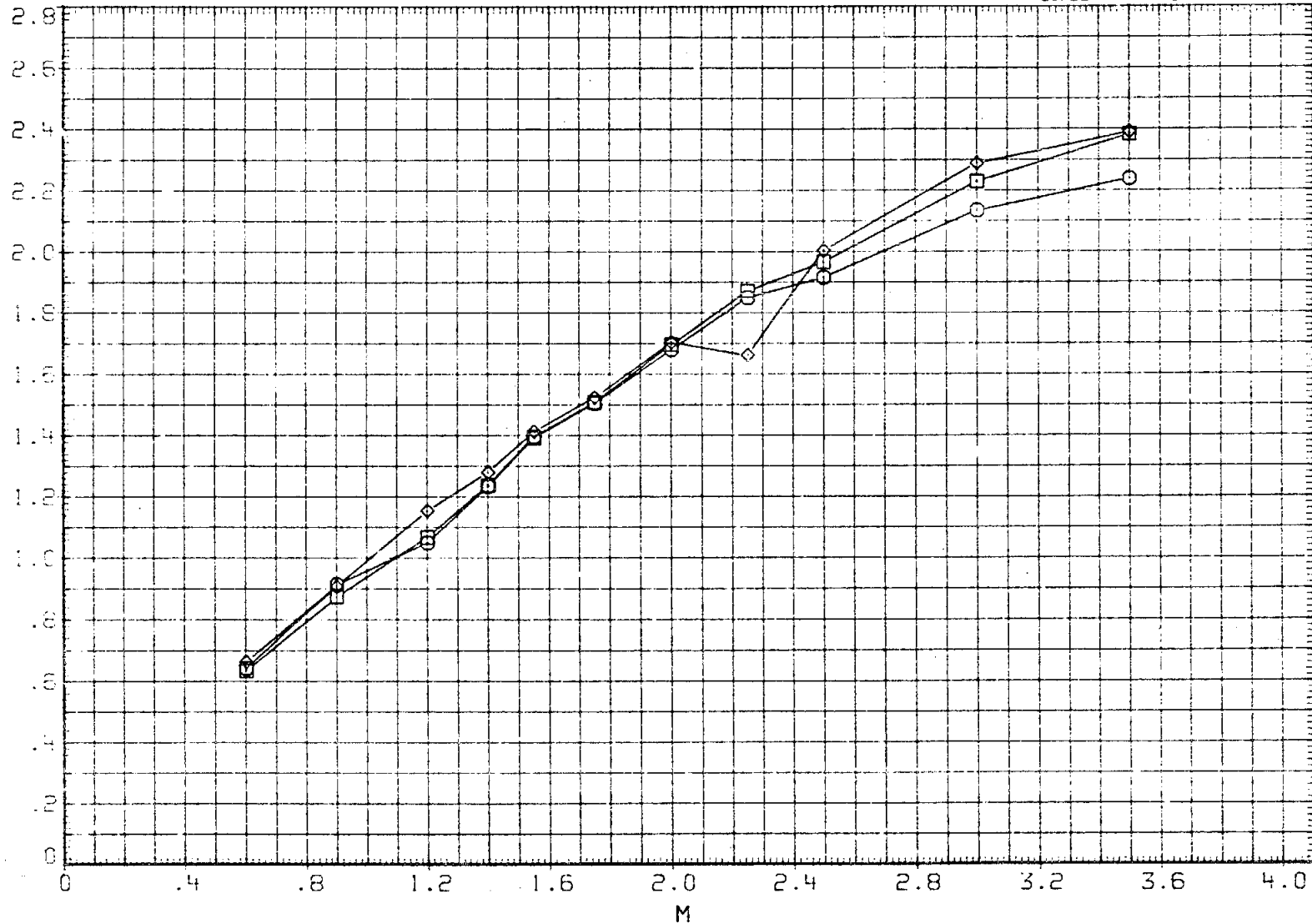


FIG. 10 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

EE7X07 CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

SYMBOL	ALPHA	BETA	PARAMETRIC VALUES	ELEVON	
◇	.000	5.000		.000	
□	12.000	.000	BDCLAP	-7.170	
○	24.000				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

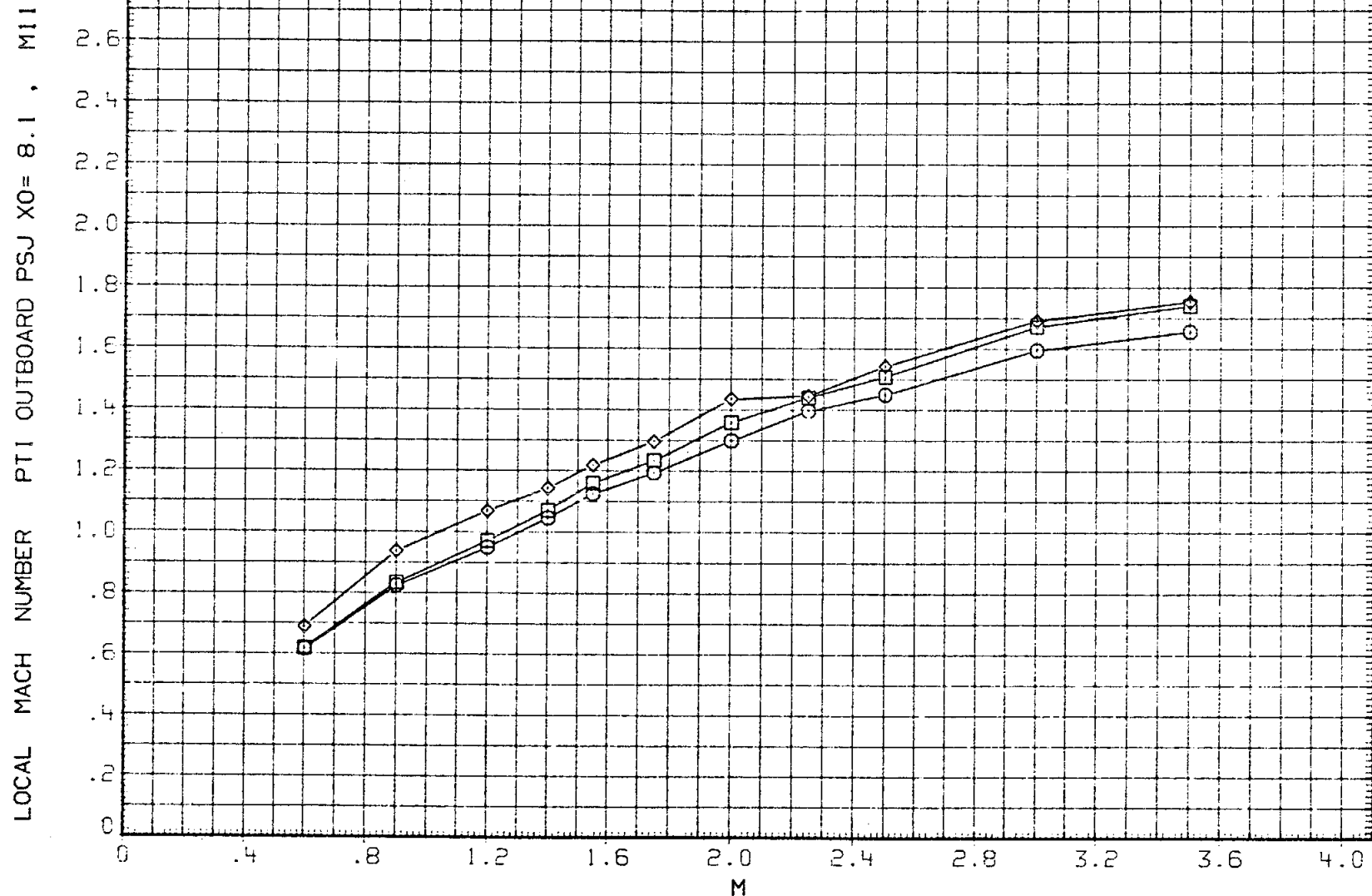


FIG. 10 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

LEVX07 CONFIGURATION ARC 11-97-87-094 DATE: CREITER + RAKES  
 SYMBOL ALPHA PARAMETRIC VALUES  
 0.000 BETA 5.000 ELEVON .000  
 12.000 AIRLON .000 BOFLAP -7.170  
 24.000

REFERENCE INFORMATION  
 SREF 2690.0000 SQ. FT.  
 CREY 474.8000 IN.  
 BREF 936.6800 IN.  
 XMPP 1075.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

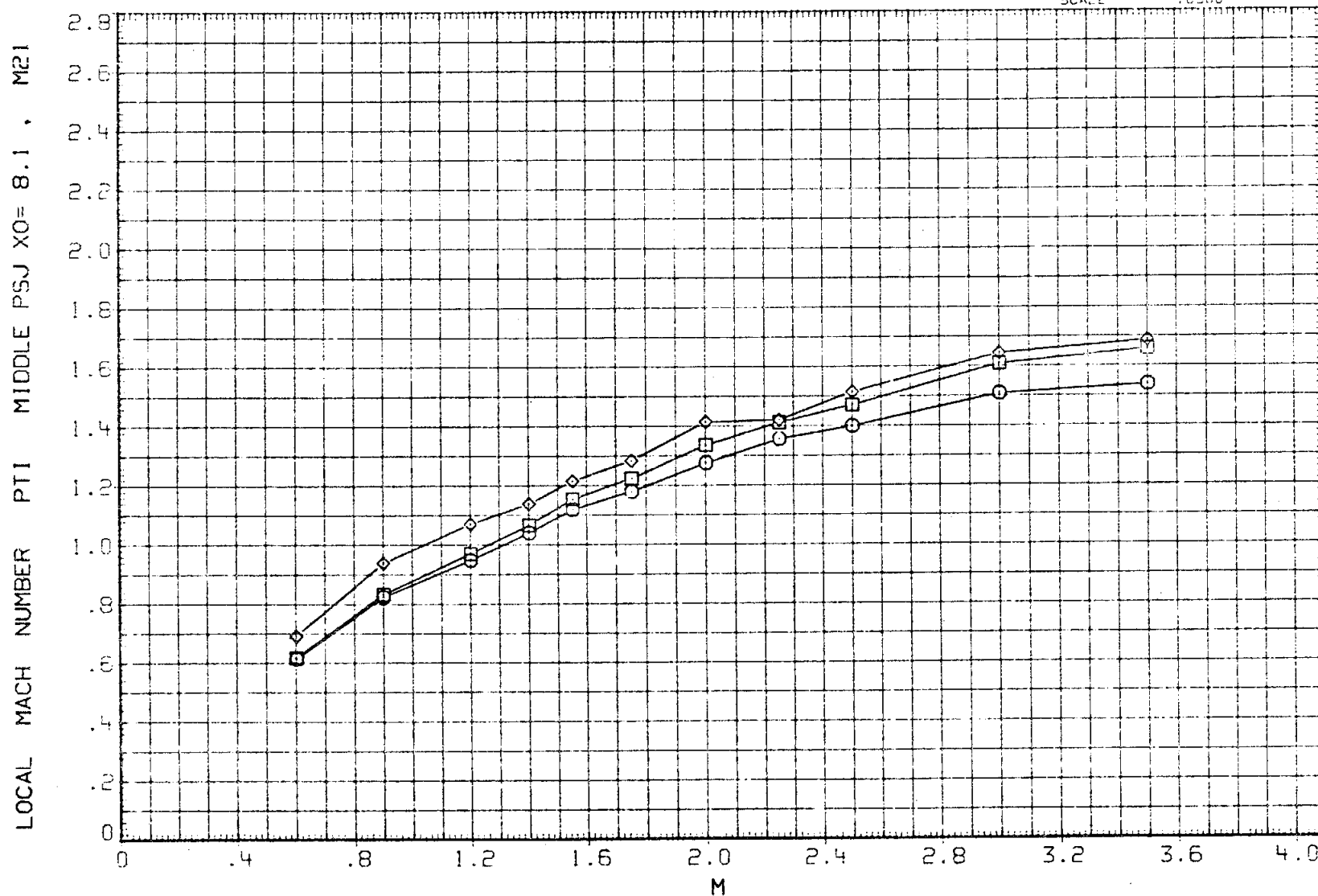


FIG. 10 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

EE7X07 CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

SYMBOL	ALPHA	PARAMETRIC VALUES			
◇	.000	BETA	5.000	ELEVON	.000
□	12.000	AIRLON	.000	BDLAP	-7.170
○	24.000				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

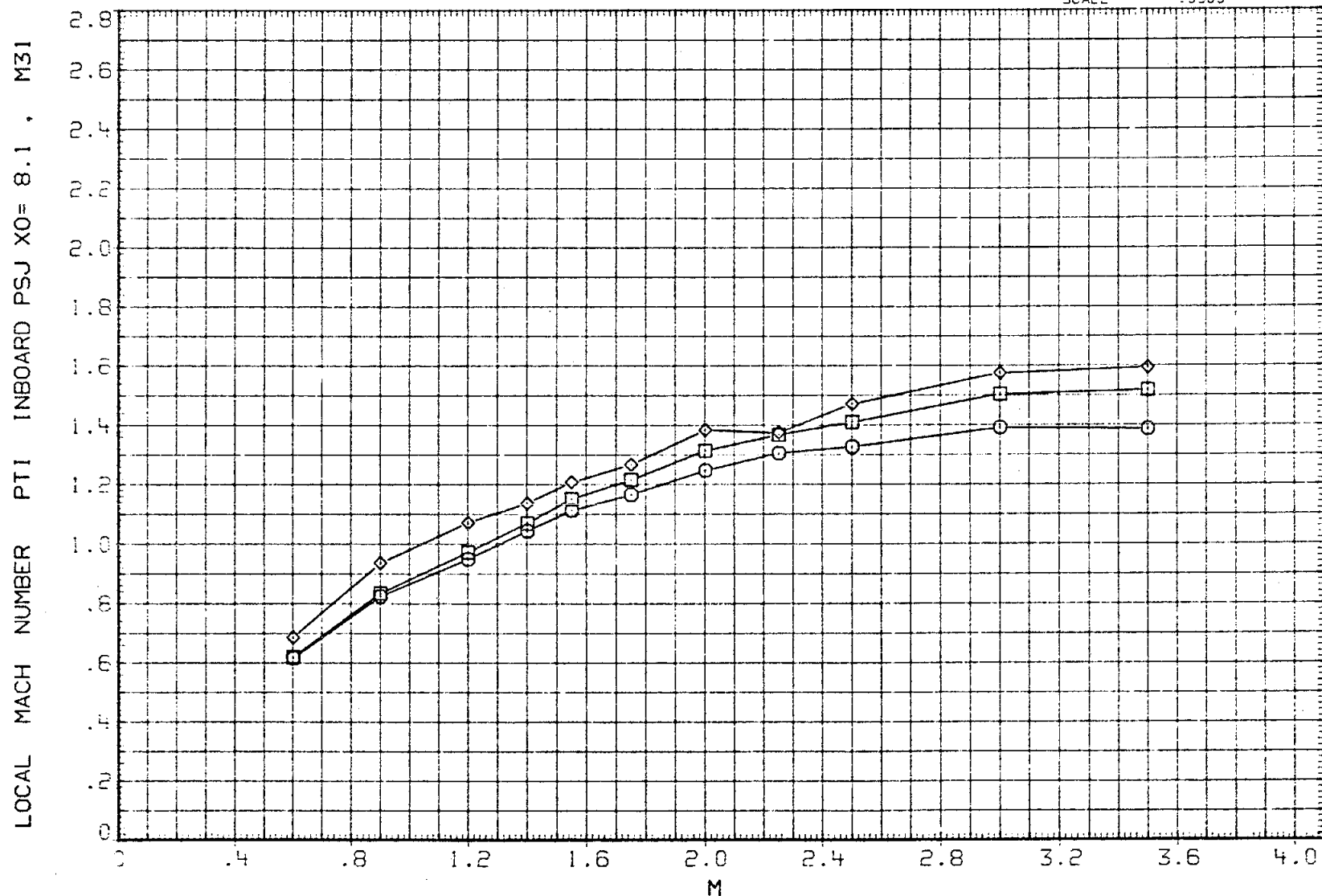


FIG. 10 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

EE7X07 CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES  
 SYMBOL ALPHA PARAMETRIC VALUES  
 12.000 BETA 5.000 ELEVON .000  
 24.000 AILERON .000 BDFLAP -7.170

REFERENCE INFORMATION  
 SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 YMRP 1076.6800 IN. XO  
 XMRP .0000 IN. XO  
 ZMRP 875.0000 IN. ZO  
 SCALE .0300

LOCAL MACH NUMBER PT1 OUTBOARD PSJ XO=12.9 , M13

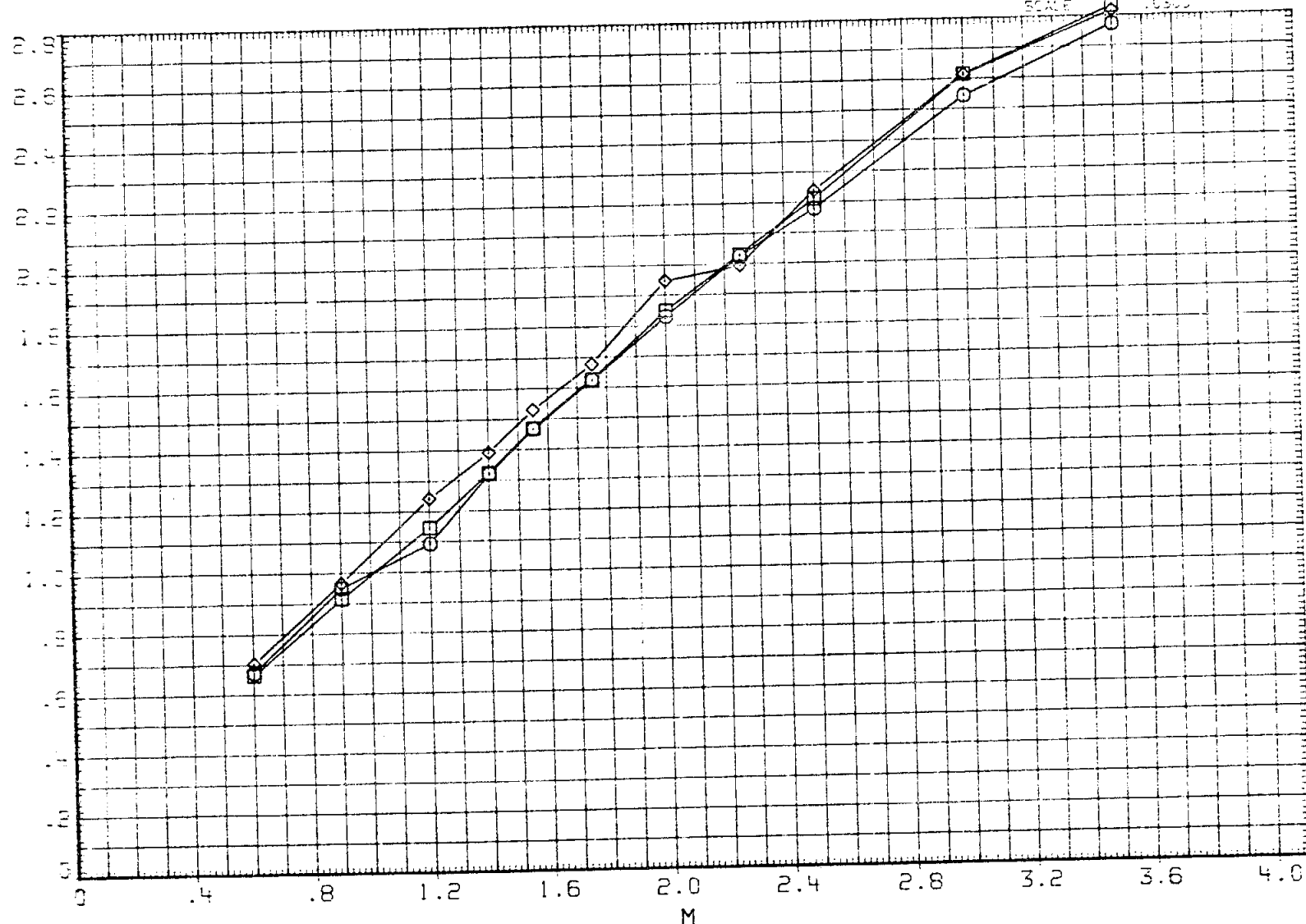


FIG. 10 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE



EE7X07 CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL

PARAMETRIC VALUES			
ALPHA	BETA	5.000	ELEVON
.000	AILRON	.000	BDFLAP
12.000			-7.170
24.000			

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.6300	

LOCAL MACH NUMBER PT1 MIDDLE PSJ XO=12.9 , M23

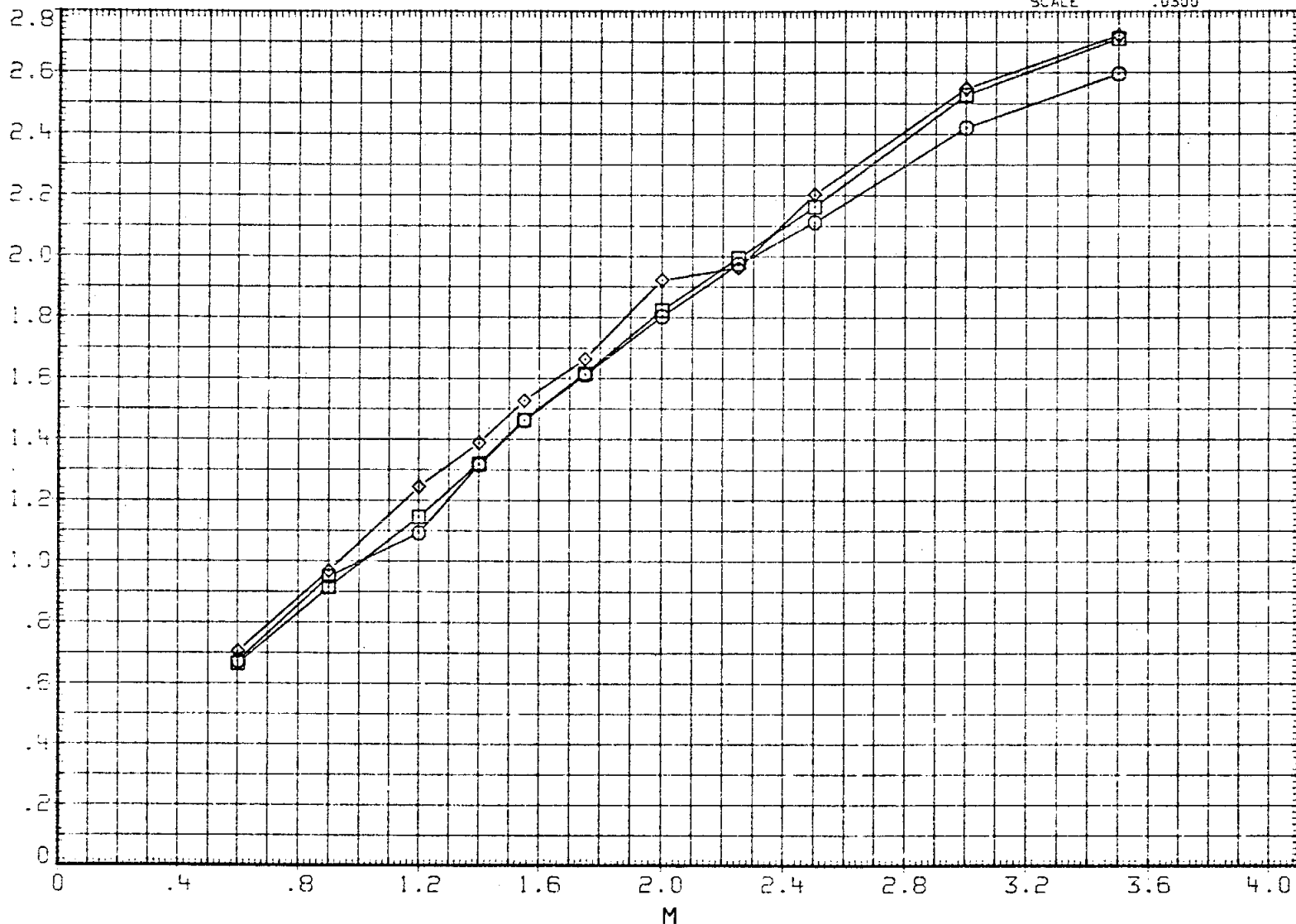


FIG. 10 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

EE7X07  
SYMBOL

CONFIGURATION ARC 11-87-87-084 GAIGI ORBITER - RAKES

PARAMETRIC VALUES

ALPHA	BETA	ELEVON	BOFLAP
1.000	5.000	.000	
12.000	AILRON	.000	-7.170
24.000			

REFERENCE INFORMATION

SRF	2680.0000	SG. FT.
LPF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

LOCAL MACH NUMBER PT1 INBOARD PSJ XO=12.9 • M33

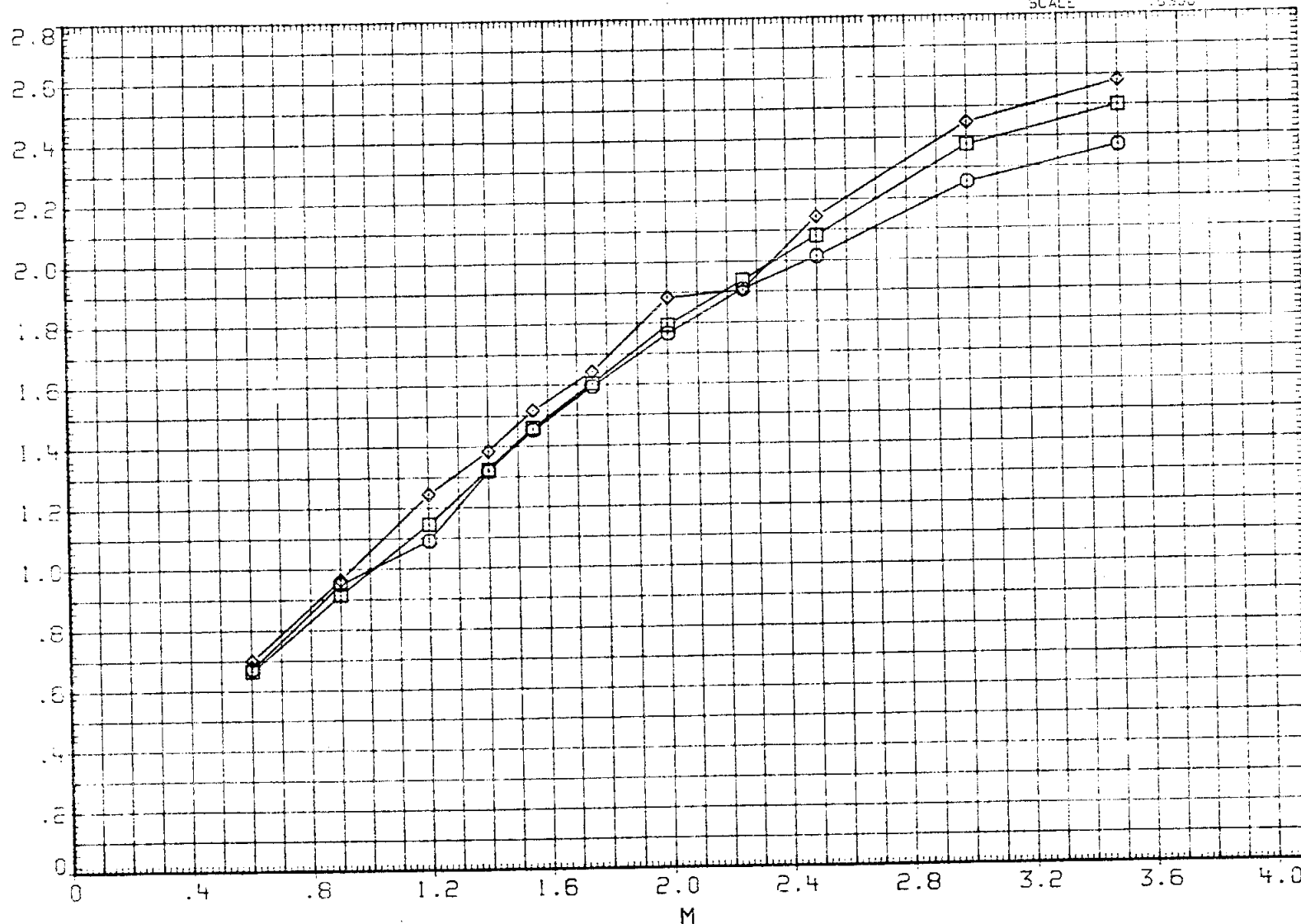


FIG. 10 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

EE7803 CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

SYMBOL	ALPHA	BETA	PARAMETRIC VALUES	ELEVON	BOFLAP
○	.000	-5.000		.000	
□	6.000	.000		-7.170	
◇	12.000				
△	18.000				
▽	24.000				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

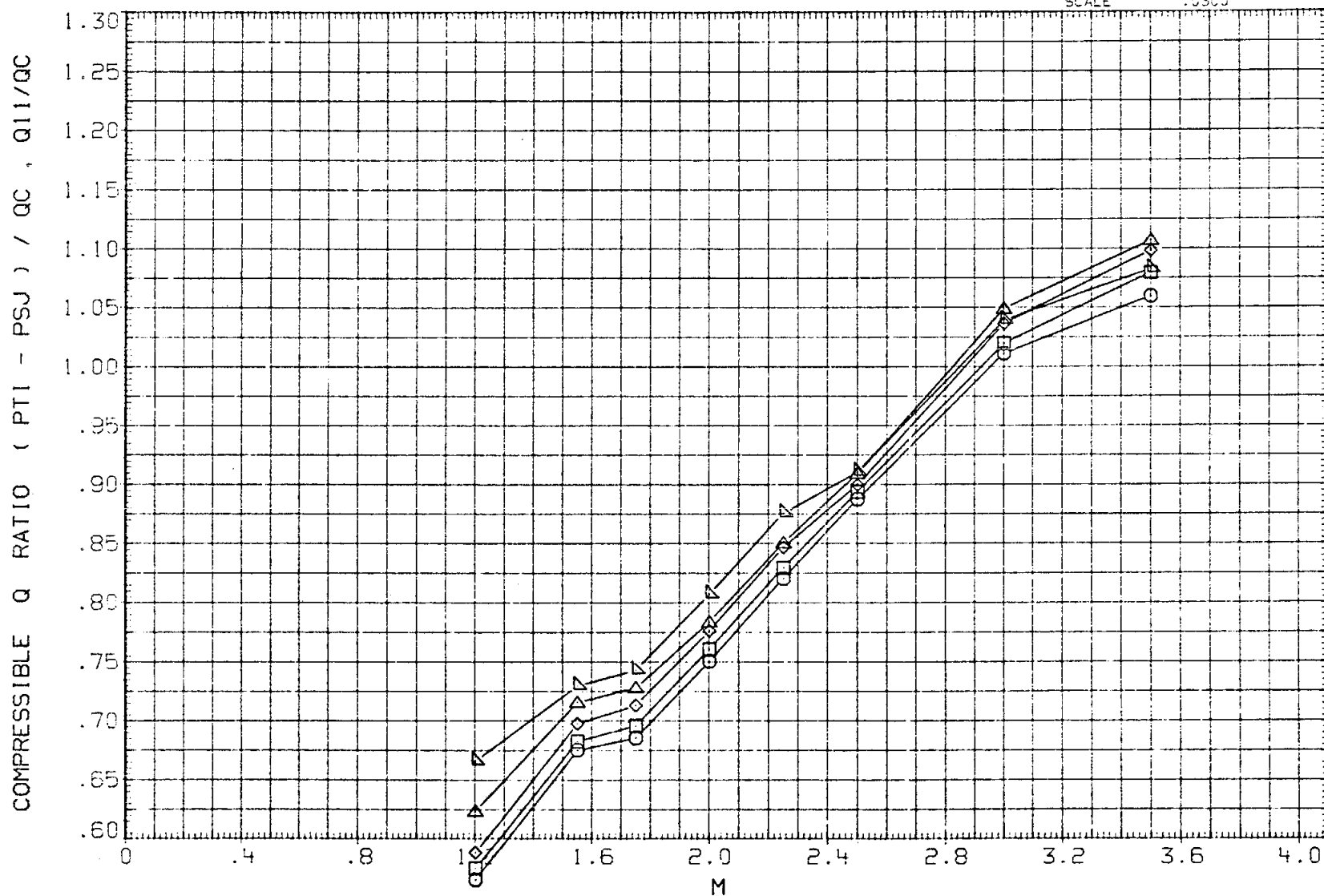


FIG. 11 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO QI/QC LEFT RAKE

EEVB03  
SYMBOL  
□  
◇  
△

CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES  
PARAMETRIC VALUES  
ALPHA .000 BETA -5.000 ELEVON .000  
6.000 AILPON .000 BDFLAP -7.170  
12.000  
18.000  
24.000

REFERENCE INFORMATION  
SREF 2500.0000 SO.F1  
LEF 474.8000 IN.  
BREF 936.6900 IN.  
XMRP 1076.6600 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0000

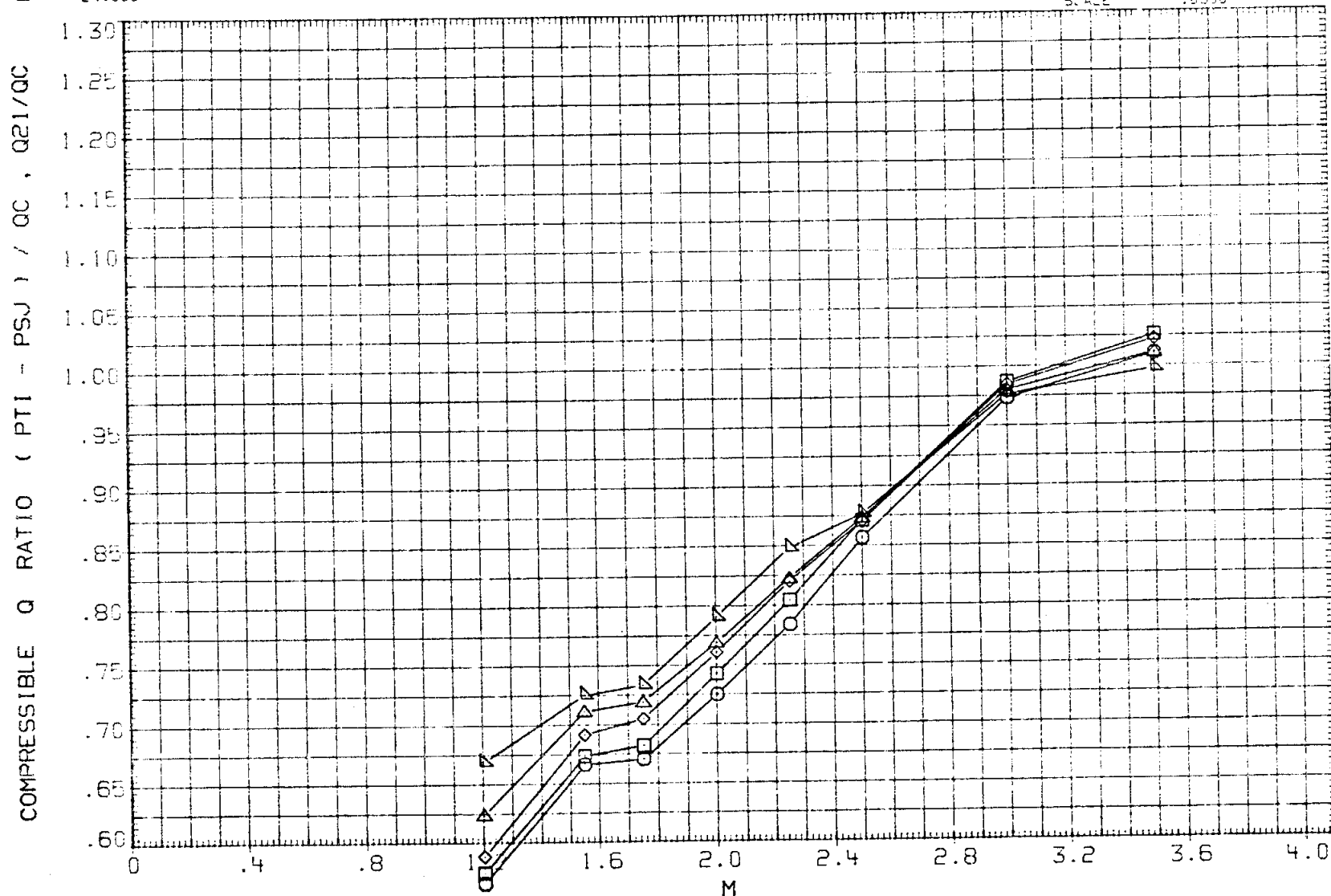


FIG. 11 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1/QC LEFT RAKE

EE7823 CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES

SYNOPSIS  
 1/2-110  
 ALPHA .000 BETA -5.000 ELEVON .000  
 6.000 AILRON .000 BDFLAP -7.170  
 12.000  
 18.000  
 24.000

REFERENCE INFORMATION  
 SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 935.6800 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0200

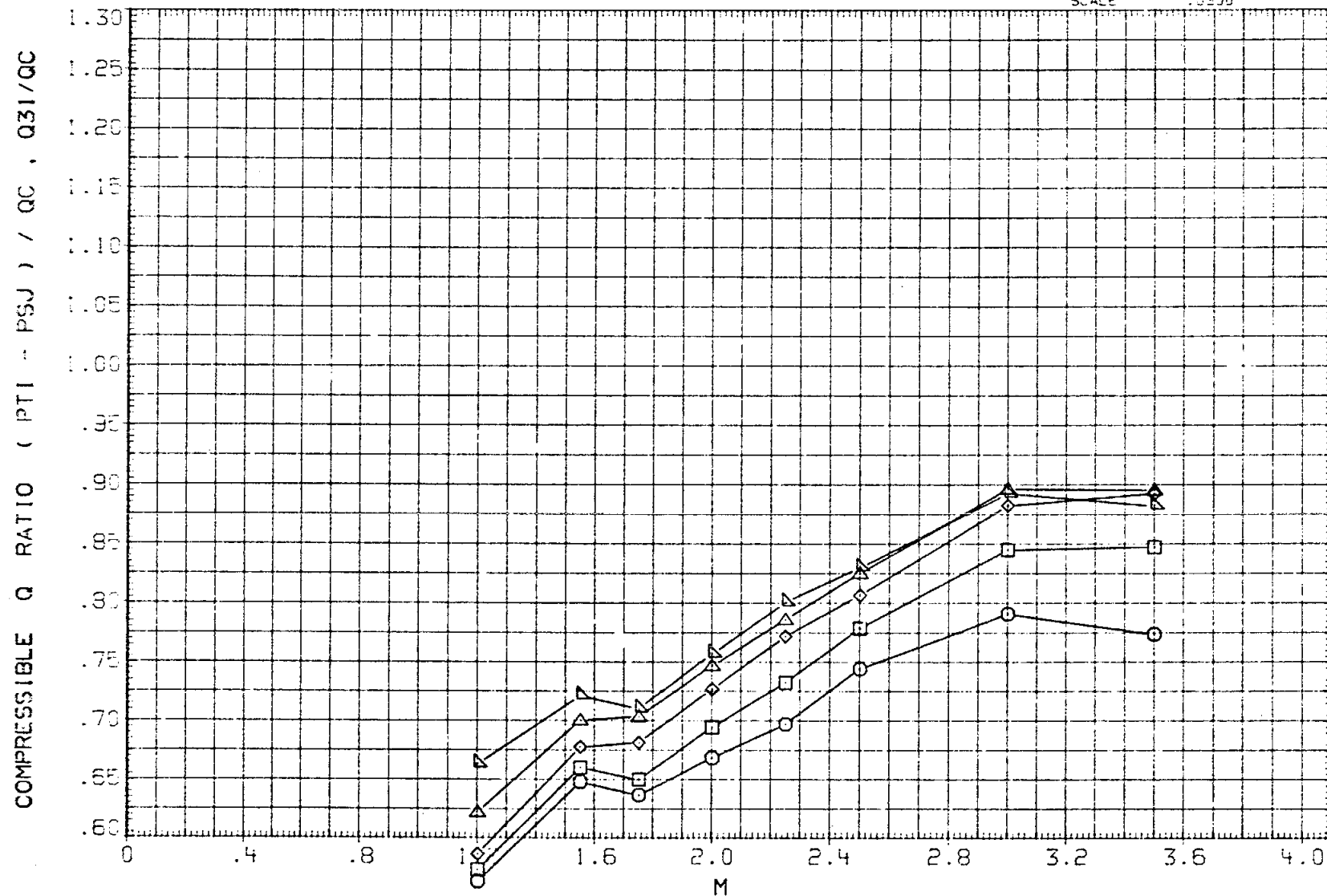


FIG. 11 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1/QC LEFT RAKE

EE7803 CONFIGURATION APC 11-87-87-09H OAI61 ORBITER - RAKES  
 SYMBOL ALPHA PARAMETRIC VALUES  
 1.000 BETA -5.000 ELEVON .000  
 6.000 ATLRON .000 BOFLAP -7.170  
 12.000  
 18.000  
 24.000

REFERENCE INFORMATION  
 SPOT 2690.0000 SQ. FT.  
 LREF 474.8200 IN.  
 SREF 936.6200 IN.  
 XMRP 1075.6900 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 75.0000 IN. ZO  
 SCALE .0300

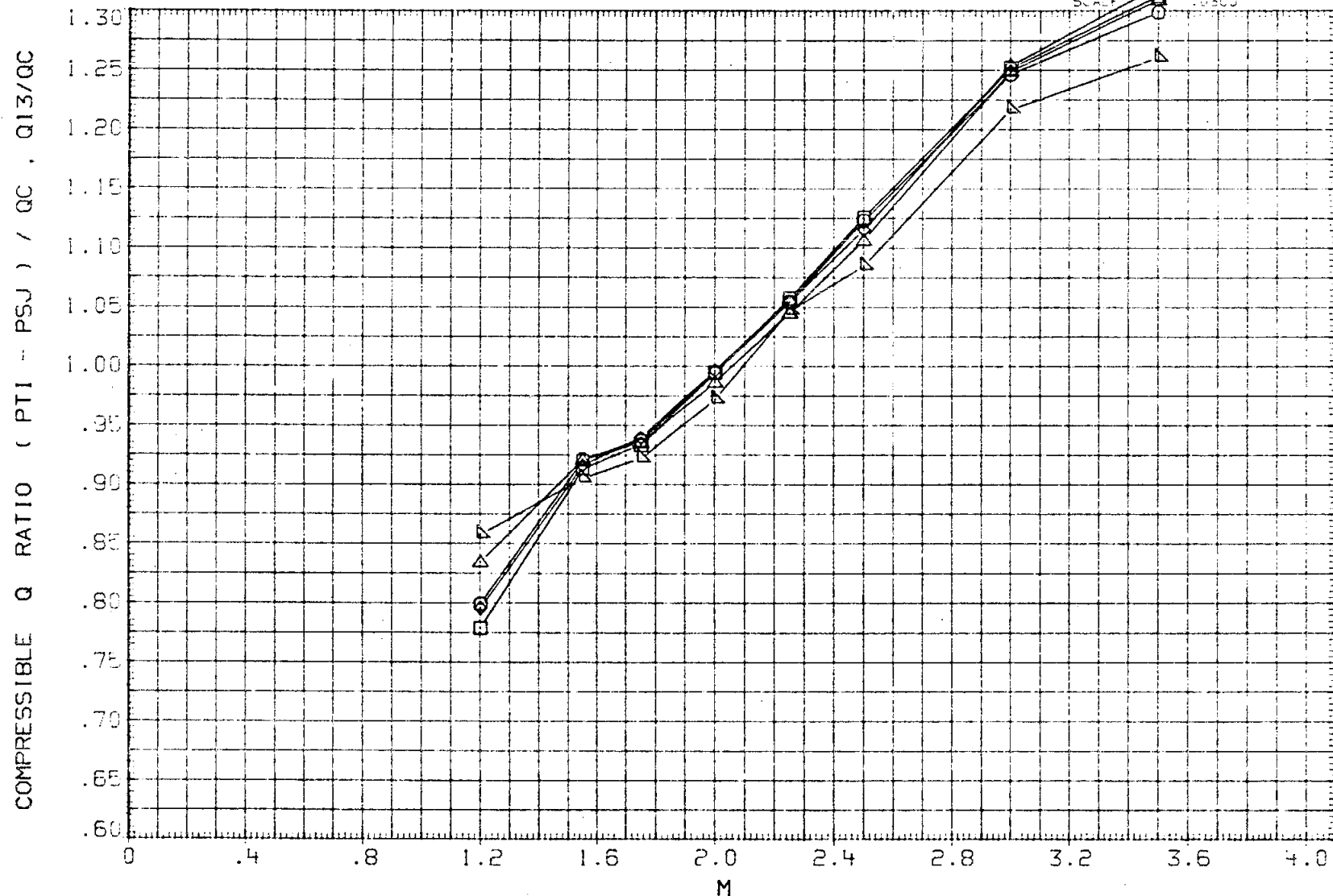


FIG. 11 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1J/QC LEFT RAKE

EE7803 CONFIGURATION ARC 11-97-87-09+ 0A161 ORBITER + RAKES

SYMBOL	ALPHA	BETA	PARAMETRIC VALUES	ELEVON	
□	.000	-5.000		.000	
△	6.000	.000	BDFLAP	-7.170	
◇	12.000				
○	18.000				
×	24.000				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

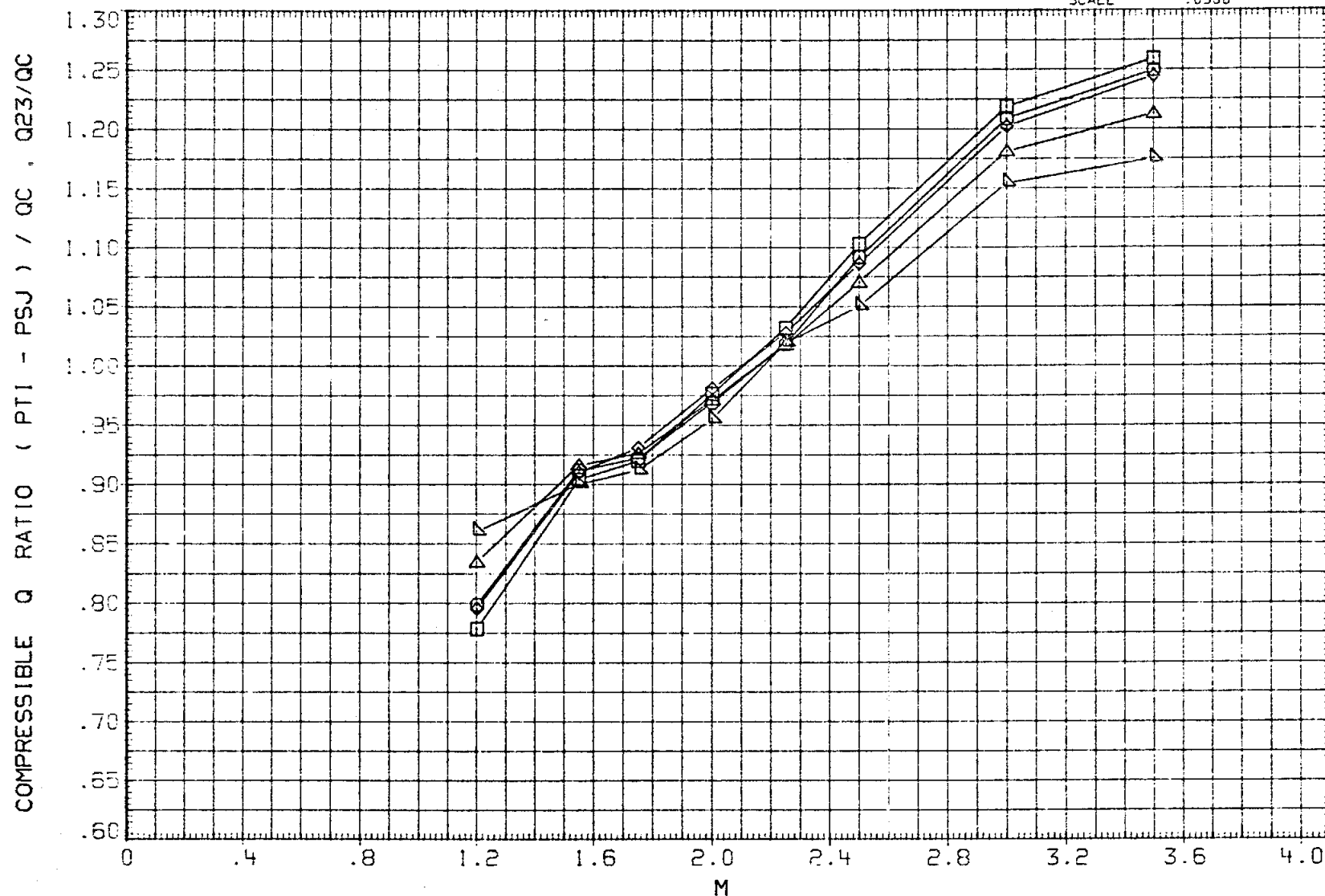


FIG. 11 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO QI/QC LEFT RAKE

SYMBOL

ALPHA

PARAMETRIC VALUES

.000	BETA	-5.000	ELEVON	.000
6.000	AILRON	.000	BDCLAP	-7.170
12.000				
18.000				
24.000				

REFERENCE INFORMATION

SREF	2690.0000	SO.FT.
LEEF	474.8000	IN.
SEEF	935.6000	IN.
YMFP	1076.6000	IN. YO
YMFP	.0000	IN. YO
ZMFP	375.0000	IN. ZO
SCALE	.0300	

COMPRESSIBLE Q RATIO ( PTI - PSJ ) / QC , Q33/QC

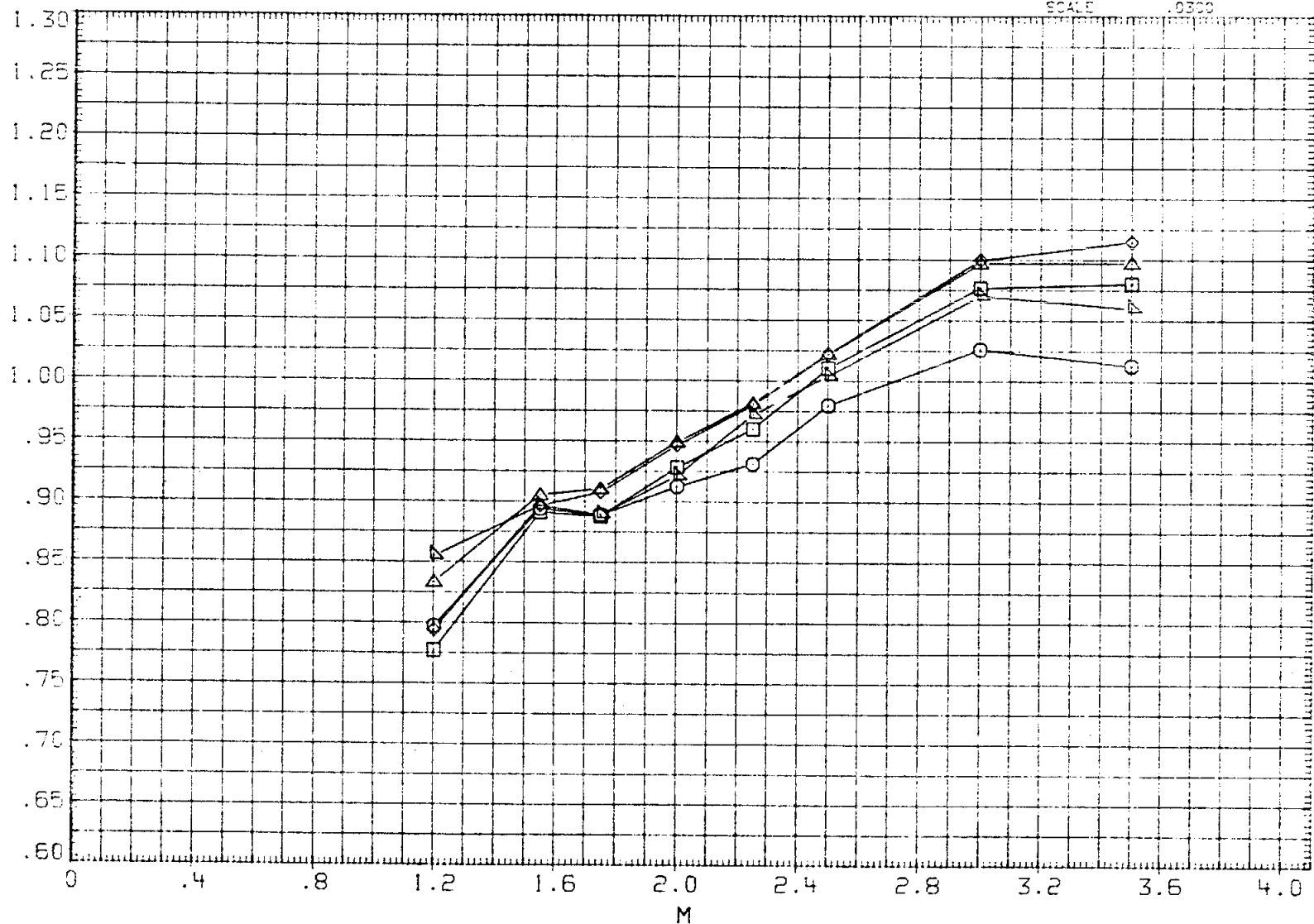


FIG. 11 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1J/QC LEFT RAKE



EE7B05 CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

SYMBOL

□  
◇  
△

PARAMETRIC VALUES			
ALPHA	BETA	ELEVON	
.000	.000	.000	
6.000	AILRON	BDFLAP	-7.170
12.000			
18.000			
24.000			

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

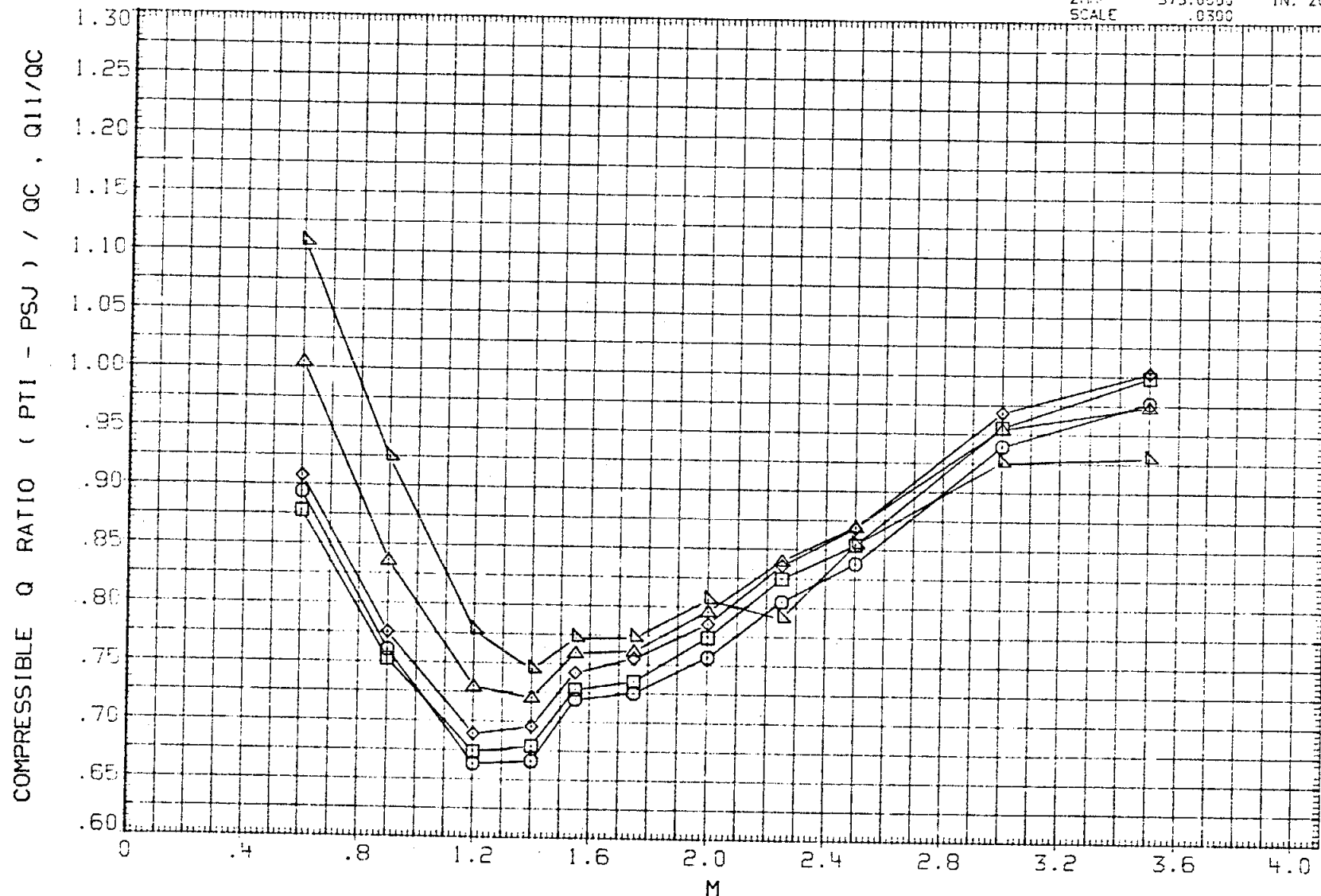


FIG. 11 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q11/QC LEFT RAKE

EE7B05  
SYMBOL

CONFIGURATION ARE 11-97-87-094 OATS, ORBITER + RAKES  
PARAMETRIC VALUES  
ALPHA .000 BETA .000 ELEVON .000  
6.000 AIRLON .000 BDFLAP -7.170  
12.000  
16.000  
24.000

REFERENCE INFORMATION  
SREF 2680.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

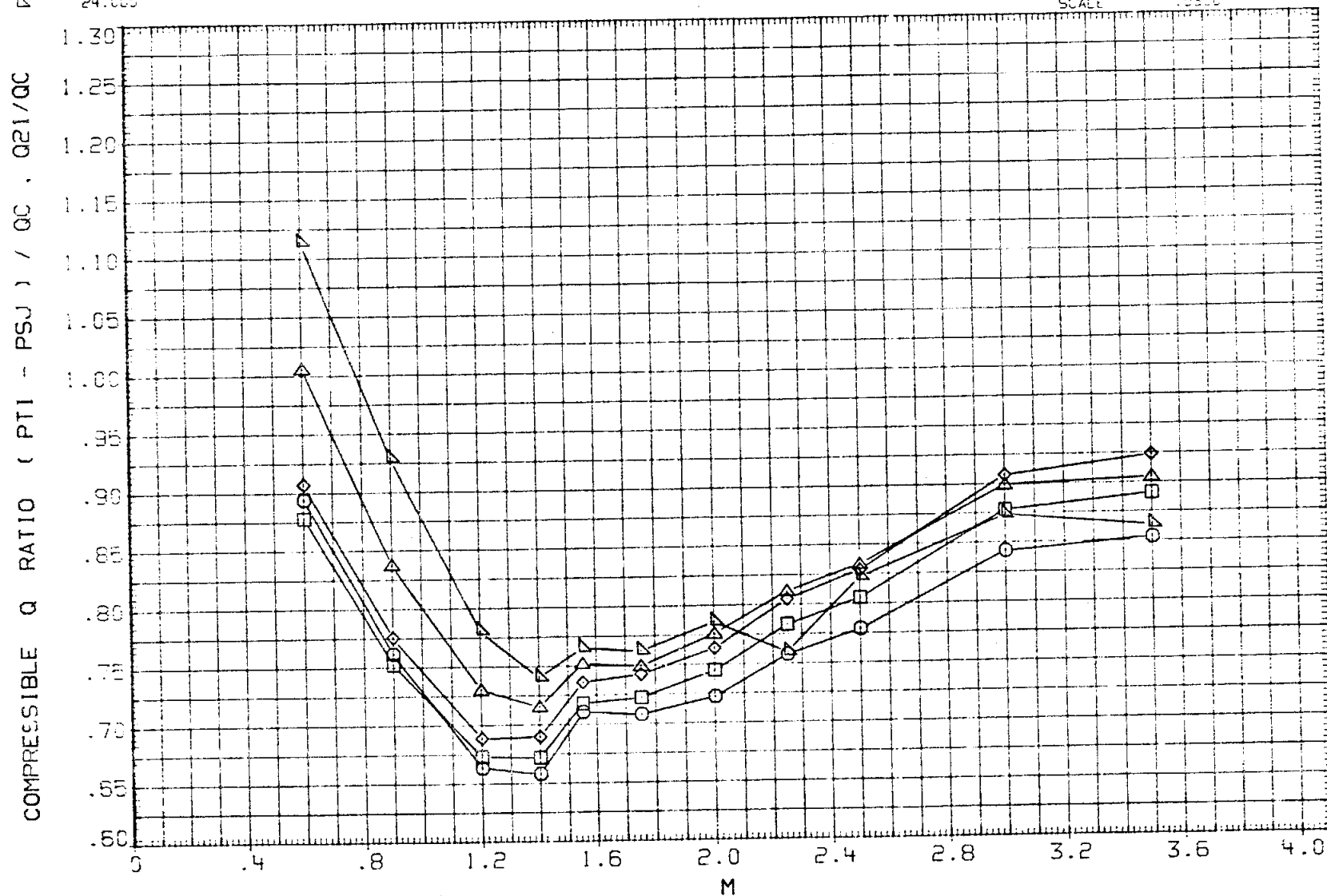


FIG. 11 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1J/QC LEFT RAKE

EE7805 CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL	ALPHA	BETA	PARAMETRIC VALUES	ELEVON	BOFLAP
◇	.000	.000		.000	
◇	6.000	.000			-7.170
◇	12.000	.000			
◇	18.000				
◇	24.000				

# REFERENCE INFORMATION

SREF	2690.0000	SO.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

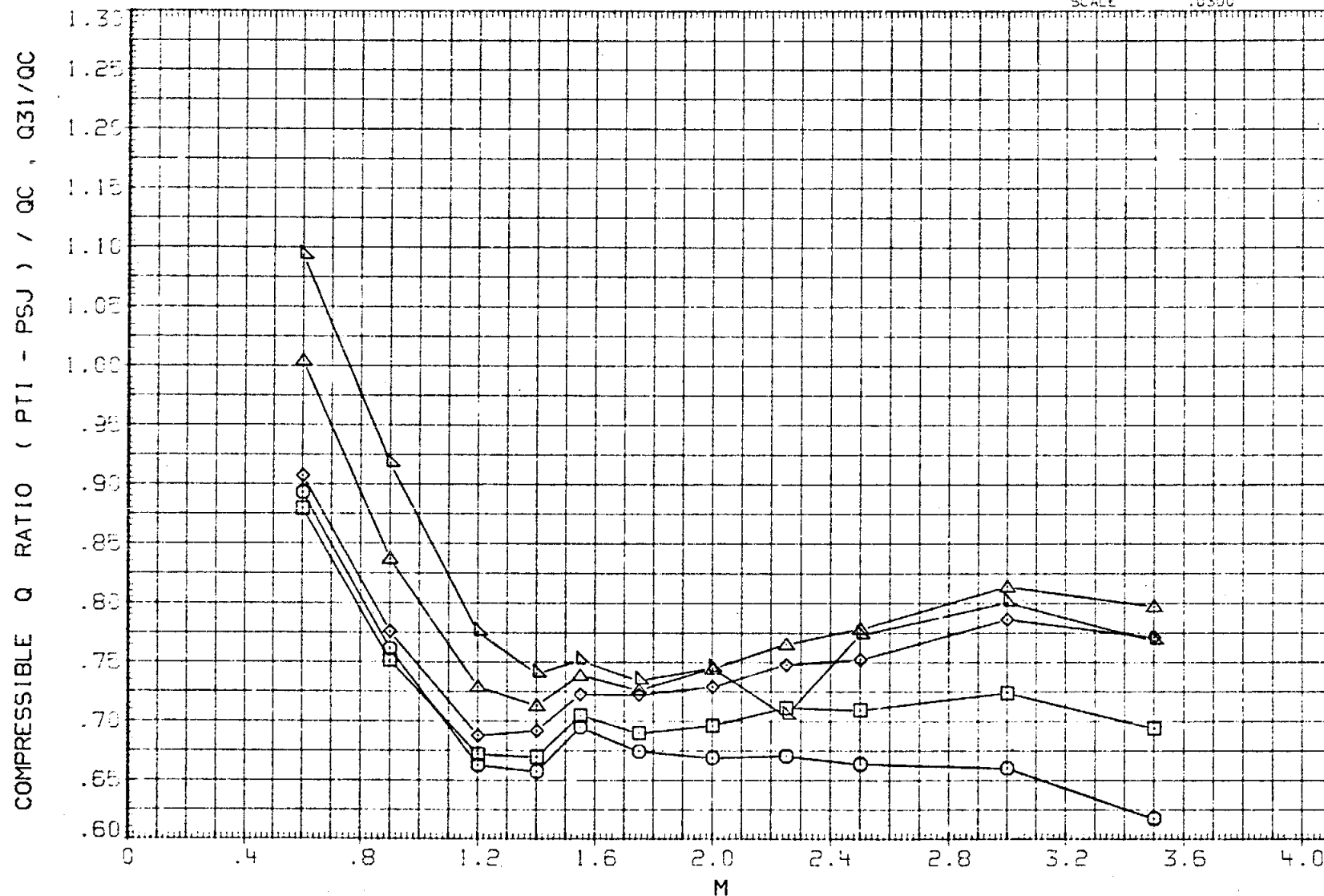


FIG. 11 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1/QC LEFT RAKE

BET805 CONFIGURATION ARC 11-97-87-094 04181 OREITER - RAKE  
 SYMBOLS ALPHA PARAMETRIC VALUES  
 1.000 BETA .000 ELEVON .000  
 6.000 AIRION .000 BDCLAP -7.170  
 12.000  
 18.000  
 24.000

REFERENCE INFORMATION  
 SREF 2690.0000 SQ. FT.  
 LREF 474.8000 IN.  
 BREF 936.6000 IN.  
 XMRP 1076.6000 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE .0300

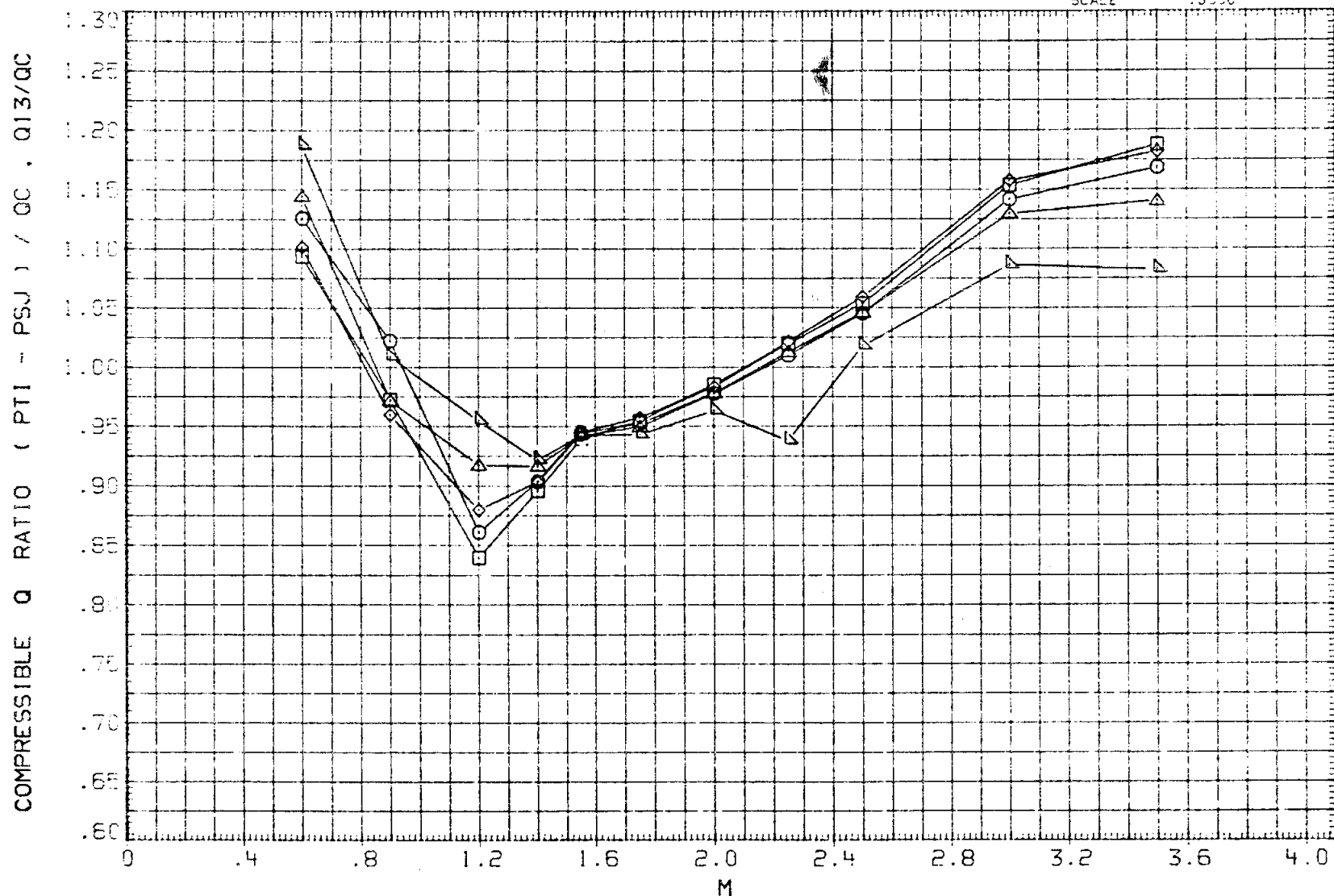


FIG. 11 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q13/QC LEFT RAKE

EE7B05 CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

SYMBOL

PARAMETRIC VALUES			
ALPHA	BETA	ELEVON	
.000	.000	.000	
6.000	AILRON	BDFLAP	-7.170
12.000			
18.000			
24.000			

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
XMPP	1075.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.3300	

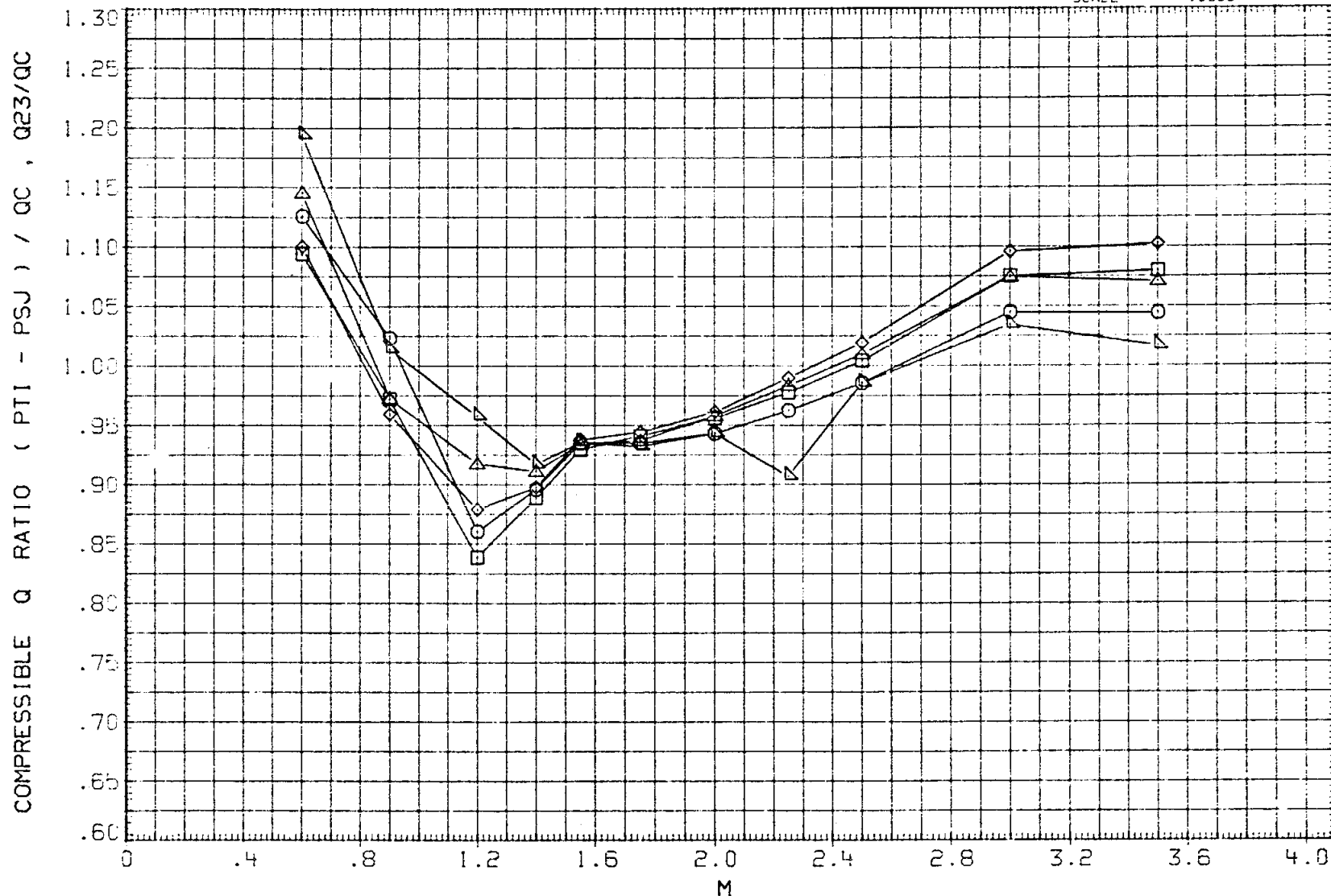


FIG. 11 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1J/QC LEFT RAKE

SYMBOL

ALPHA

PARAMETRIC VALUES

SREF	2690.0000	50. FT.
LREF	474.8000	IN.
BREF	936.6600	IN.
XMRP	1076.6900	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

.0000

BETA

.0000

ELEVON

.0000

6.0000

AILRON

.0000

BDFLAP

-7.170

12.0000

18.0000

24.0000

$\nabla \diamond \square \circ$   
 COMPRESSIBLE Q RATIO ( PTI - PSJ ) / QC , Q33/QC

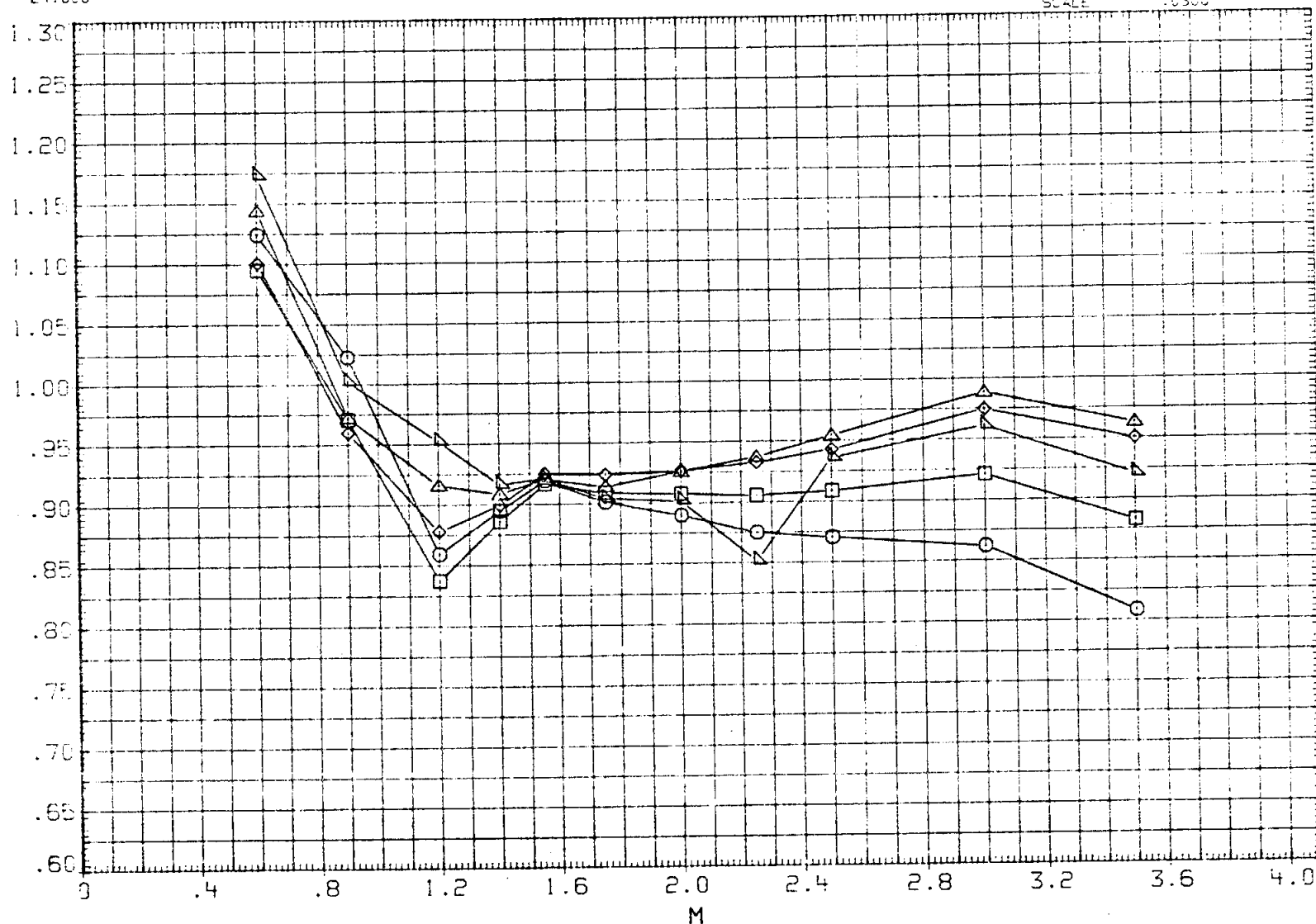


FIG. 11 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1J/QC LEFT RAKE

EE7807 CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

SYMBOL

○  
□  
◇  
△

PARAMETRIC VALUES			
ALPHA	BETA	ELEVON	BDFLAP
.000	5.000	.000	-7.170
6.000	.000		
12.000			
18.000			
24.000			

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6000	IN.
XMPP	1076.6000	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

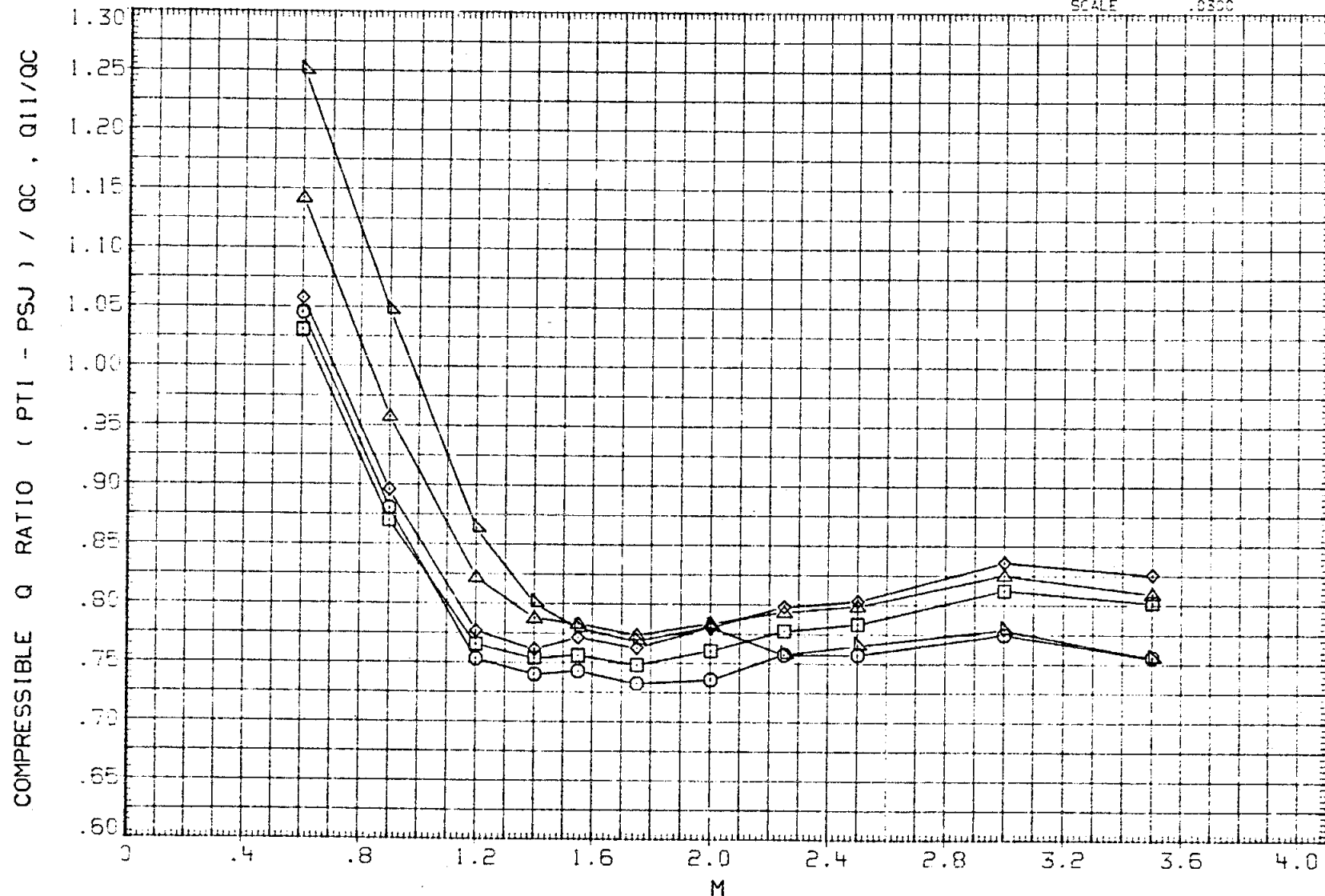


FIG. 11 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO QI1/QC LEFT RAKE

EE7807  
SYMBOL

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES  
PARAMETRIC VALUES  
ALPHA .000 BETA 5.000 ELEVON .000  
6.000 AILRON .000 BDFLAP -7.170  
12.000  
18.000  
24.000

REFERENCE INFORMATION  
SREF 2690.0000 SQ.FT.  
LREF 474.0000 IN.  
BREF 936.6900 IN.  
XMCP 1076.6800 IN. X0  
YMCP .0000 IN. Y0  
ZMCP 375.0000 IN. Z0  
SCALE .0300

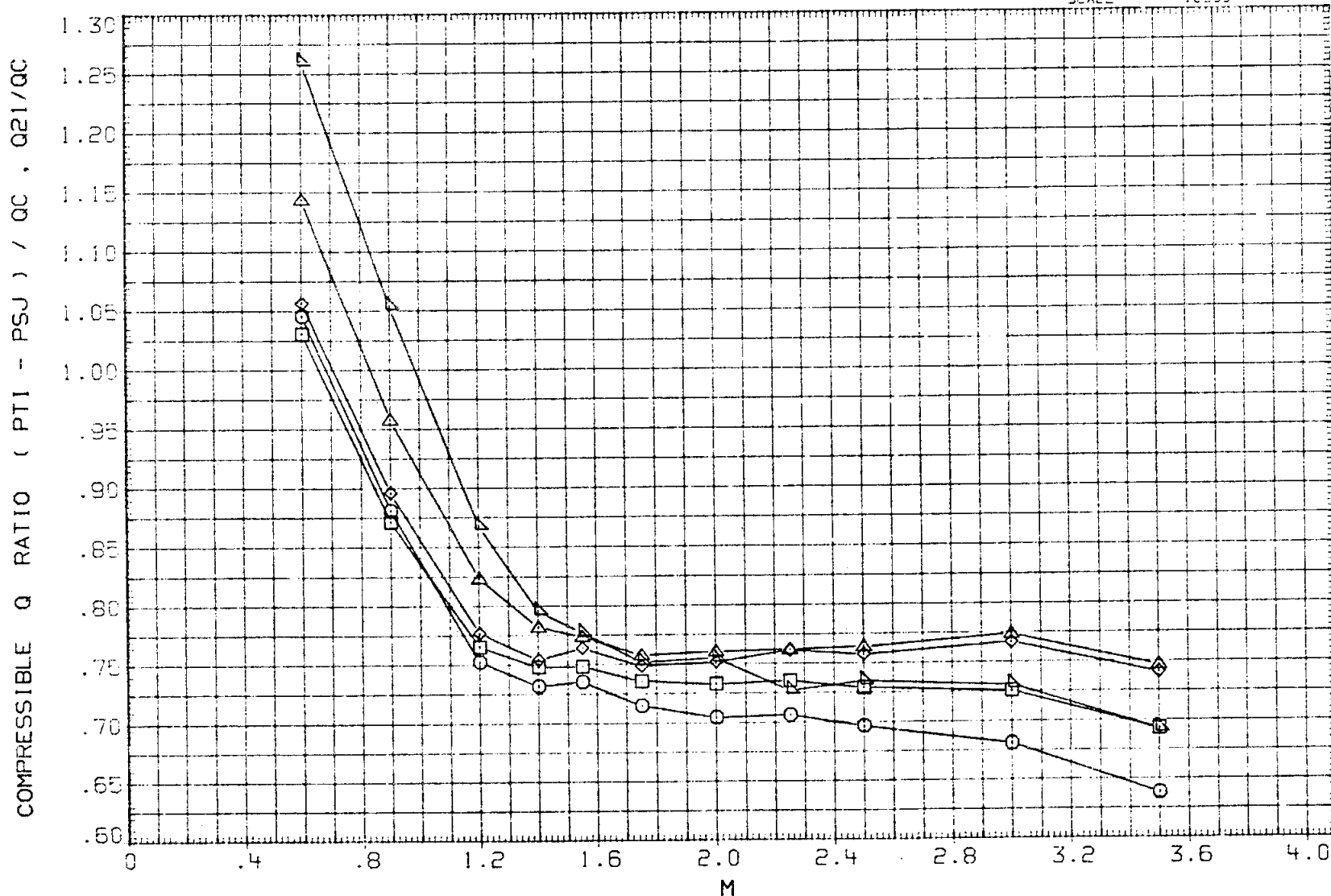


FIG. 11 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1J/QC LEFT RAKE



EE7897  
SV 88

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

PARAMETRIC VALUES				
ALPHA	BETA	5.000	ELEVON	.000
.000	AILRON	.000	BDFLAP	-7.170
6.000				
12.000				
18.000				
24.000				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XM RP	1076.6800	IN. XO
YM RP	.0000	IN. YO
ZM RP	375.0000	IN. ZO
SCALE	.0300	

COMPRESSIBLE Q RATIO ( PTI - PSU ) / QC , Q31/QC

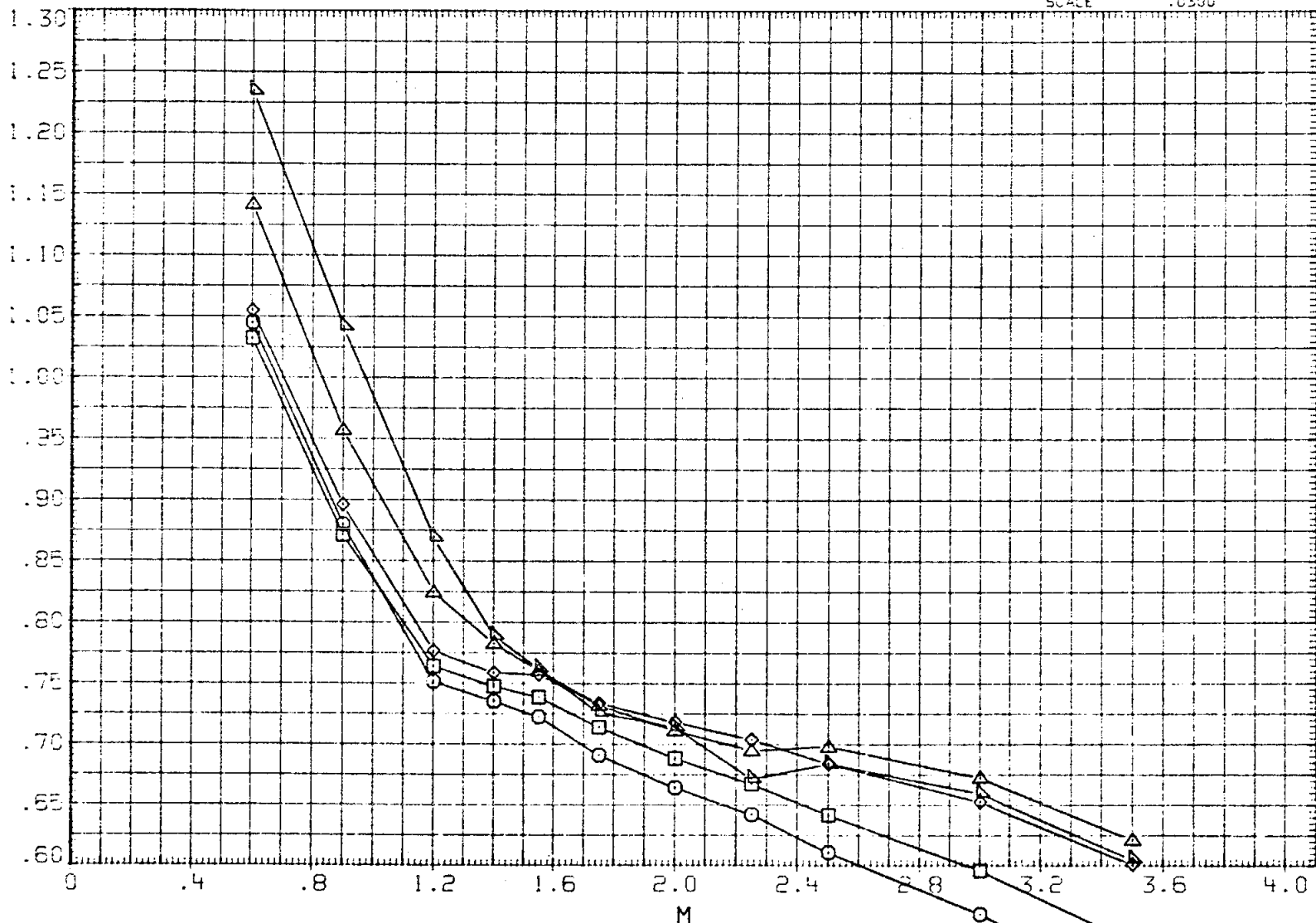


FIG. 11 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q10/QC LEFT RAKE

EET807  
 SYMBOL  
 1000  
 5.000  
 12.000  
 18.000  
 24.000

CONFIGURATION AFC 11-97-87-094 GA161 ORBITER - RAKES  
 PARAMETRIC VALUES  
 BETA 5.000  
 AILRON 1.000  
 ELEVON 1.000  
 BOFLAP -7.170

REFERENCE INFORMATION  
 SREF 2690.0000 52.11  
 LREF 474.8000 IN.  
 SREF 936.6800 IN.  
 XMRP 1076.6800 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE .0300

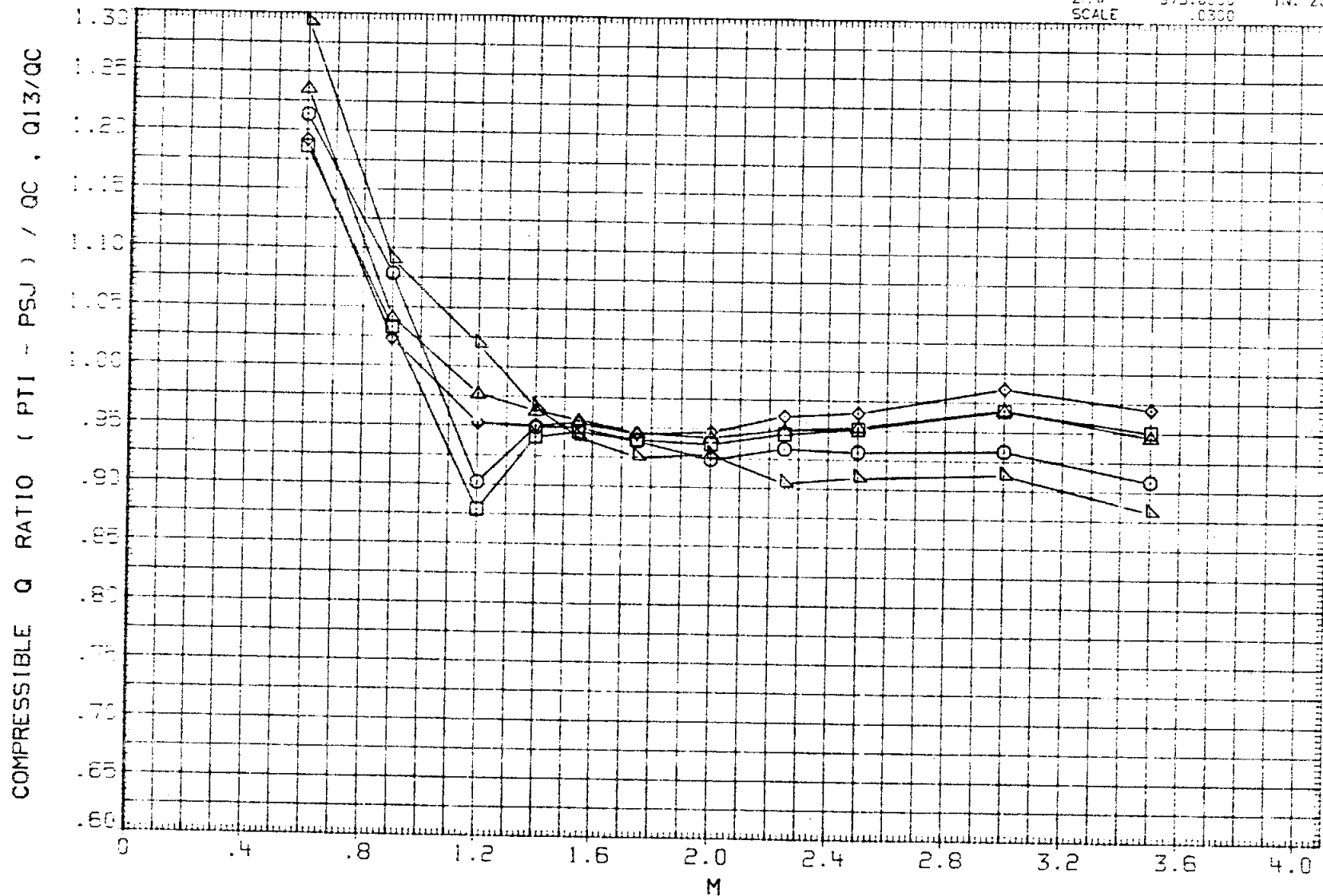


FIG. 11 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1J/QC LEFT RAKE

EE7R07 CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

SYMBOL

PARAMETRIC VALUES  
 ALPHA .000 BETA 5.000 ELEVON .000  
 6.000 AILRON .000 BOFLAP -7.170  
 12.000  
 18.000  
 24.000

REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

COMPRESSIBLE Q RATIO ( PTI - PSJ ) / QC , Q23/QC

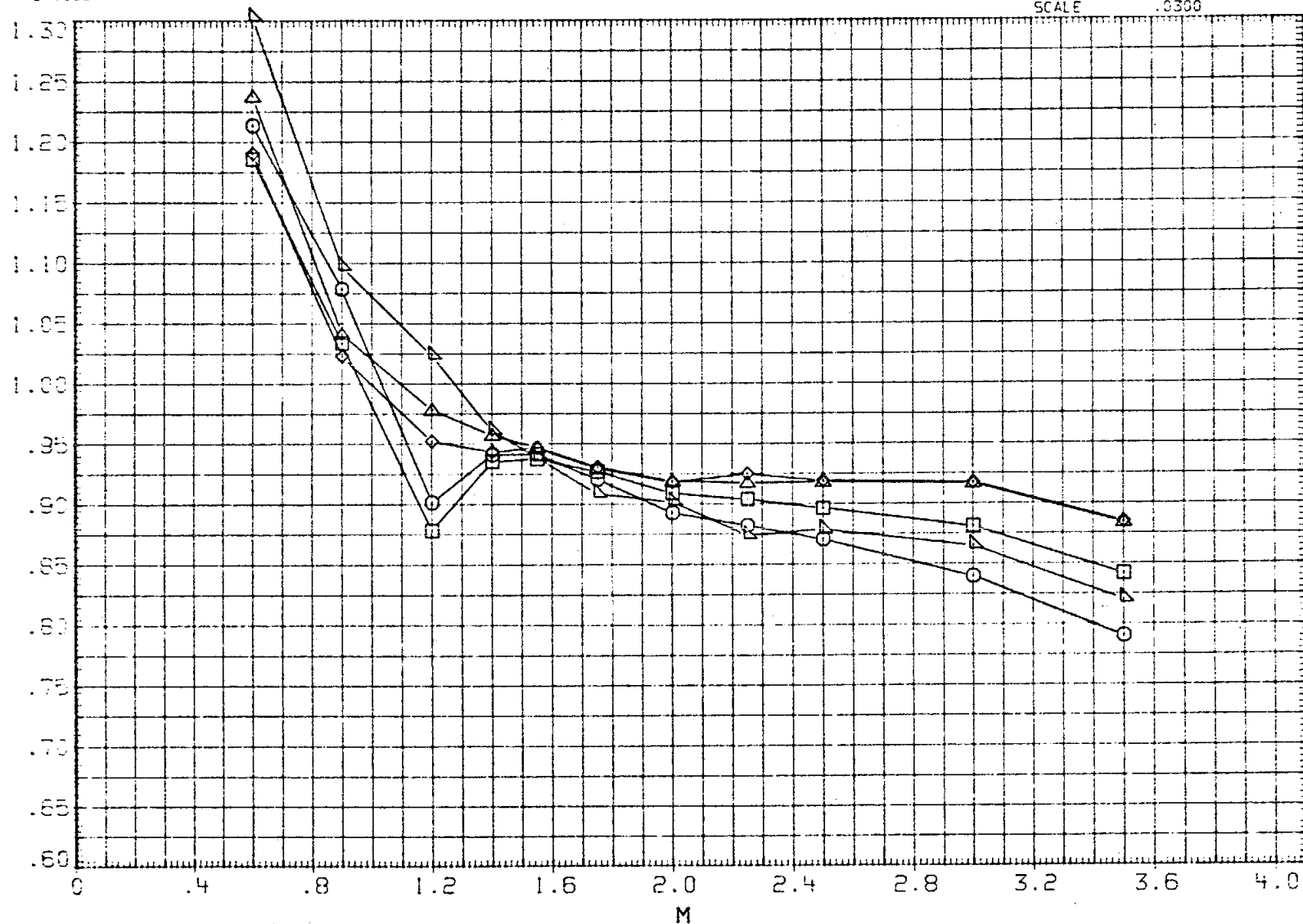


FIG. 11 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1J/QC LEFT RAKE

EF7837  
SYMBOL

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES  
PARAMETRIC VALUES  
ALPHA .000 BETA 5.000 ELEVON .000  
6.000 AILRON .000 BOFLAP -7.170  
12.000  
18.000  
24.000

REFERENCE INFORMATION  
SREF 2690.0000 50.FT.  
LREF 474.8000 IN.  
BREF 936.6000 IN.  
XMPP 1076.6000 IN. XO  
YMPP .0000 IN. YO  
ZMPP 376.0000 IN. ZO  
SCALE .0333

COMPRESSIBLE Q RATIO ( PTI - PSJ ) / QC , Q33/QC

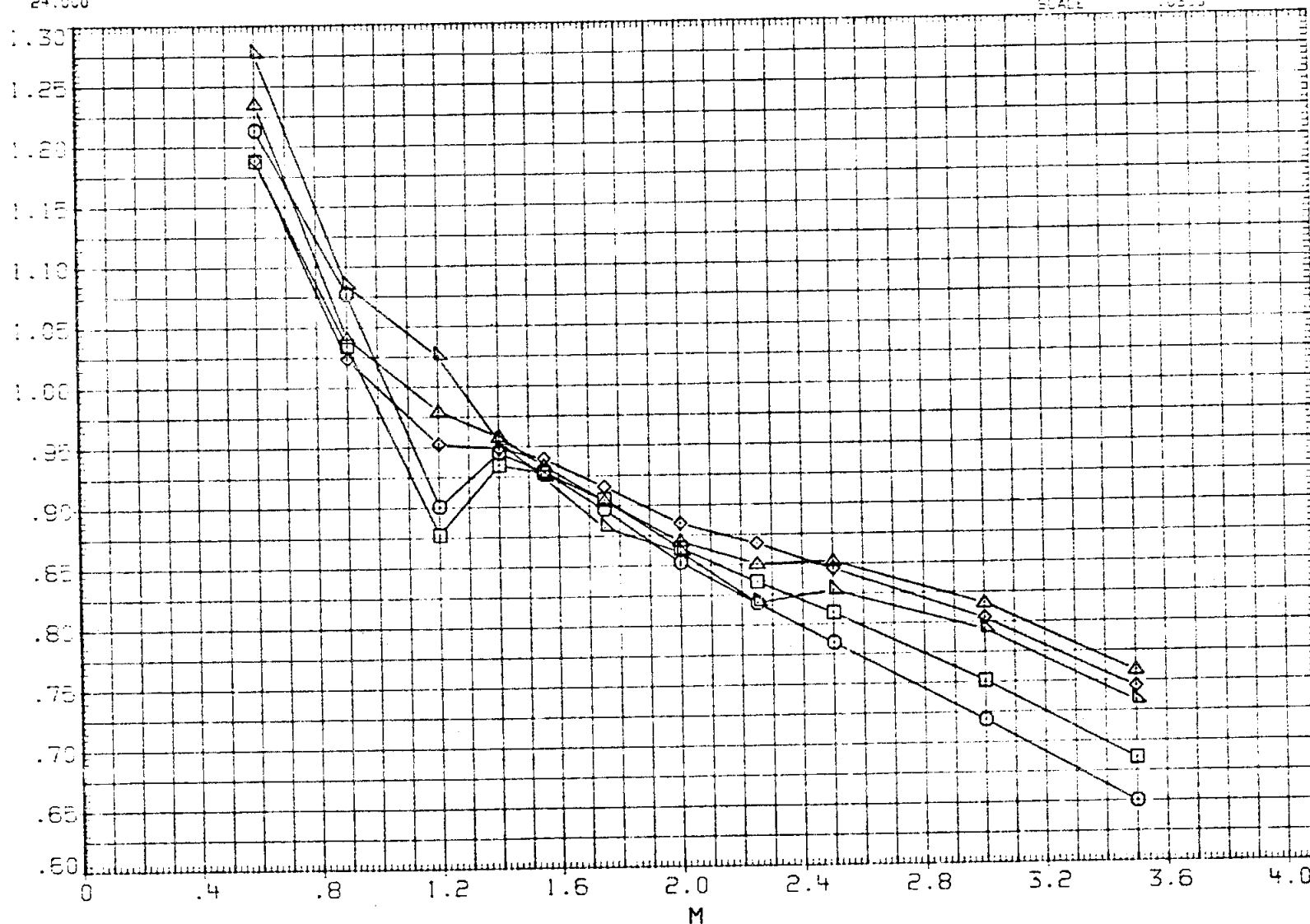


FIG. 11 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1J/QC LEFT RAKE

EE700Z  
SYMBOL

CONFIGURATION ARC 11-97-87-09+ 0A161 ORBITER + RAKES

PARAMETRIC VALUES			
ALPHA	BETA	ELEVON	BOFLAP
.000	-5.000	.000	-7.170
6.000	.000		
12.000			
18.000			
24.000			

REFERENCE INFORMATION

SREF	2690.0000	SC.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PTI-PSJ ) , DPQ137/◇◇◇◇

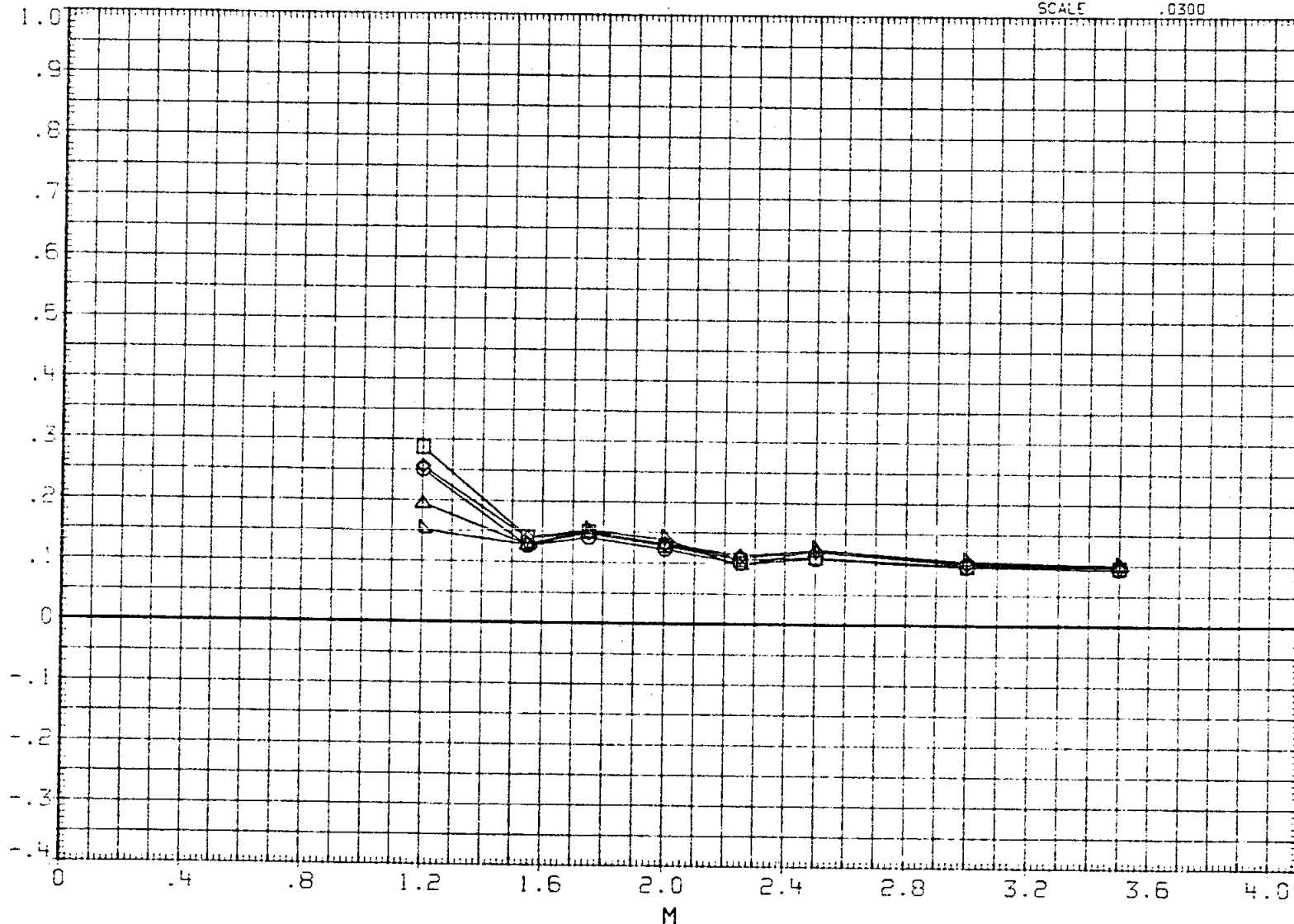


FIG. 12 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P / QIJ LEFT RAKE

PARAMETRIC VALUES  
 ALPHA .000 BETA -5.000 ELEVON .000  
 6.000 AILERON .000 BOFLAP -7.170  
 12.000  
 18.000  
 24.000

SREF 2690.0000 90. FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. Y0  
 YMRP .0000 IN. X0  
 ZMRP 375.0000 IN. Z0  
 SCALE .0350

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PT1-PSJ ) , DPQ237/DO10

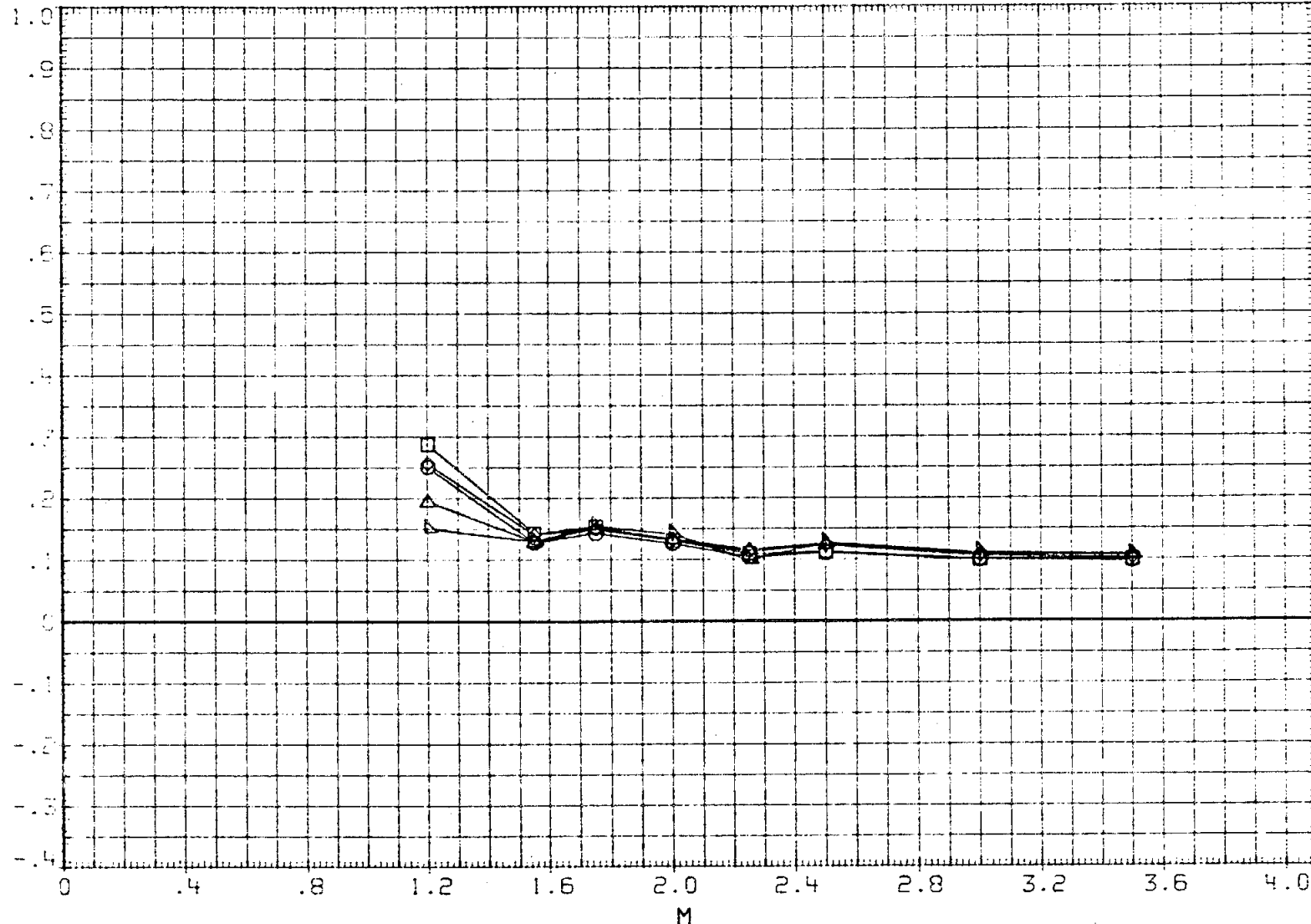


FIG. 12 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P /Q1J LEFT RAKE

EE7003  
SYMBOL

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

PARAMETRIC VALUES			
ALPHA	BETA	ELEVON	.000
.000	-5.000	BDFLAP	-7.170
6.000	.000		
12.000			
18.000			
24.000			

REFERENCE INFORMATION		
SREF	2590.0000	50.FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
XMPP	1076.6800	IN. X0
YMPP	.0000	IN. Y0
ZMPP	375.0000	IN. Z0
SCALE	.0000	

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PT1-PSJ ) , DPQ337DQO

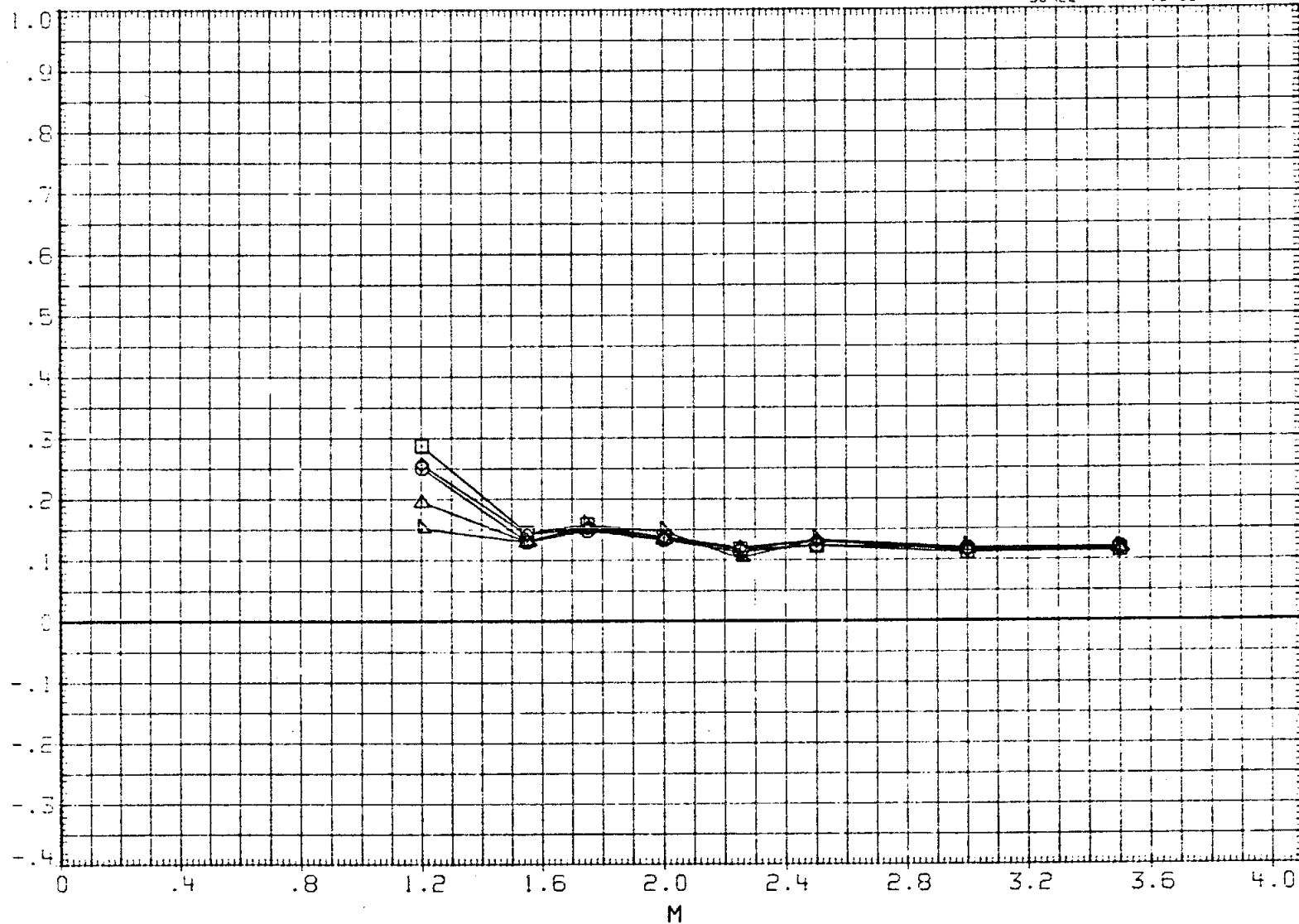


FIG. 12 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P / Q1J LEFT RAKE

EE7003  
SYMBOL

CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES  
PARAMETRIC VALUES  
ALPHA .000 BETA -5.000 ELEVON .000  
6.000 AILRON .000 BOFLAP -7.170  
12.000  
18.000  
24.000

REFERENCE INFORMATION  
SREF 2690.0000 50.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PTI - PSJ ) , DPQ114000

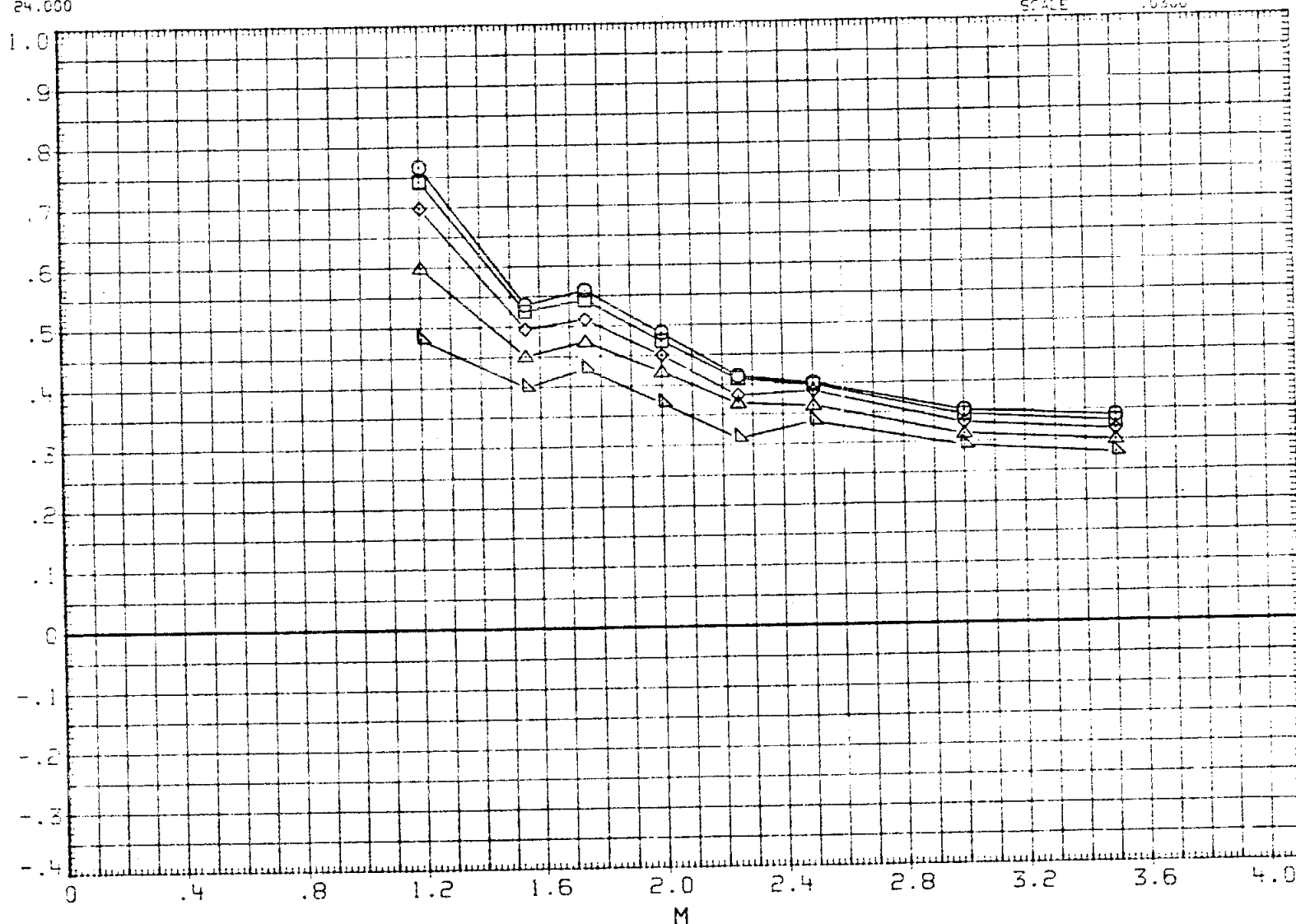


FIG. 12 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P / Q1J LEFT RAKE



EE7D02  
SYMBOL

CONFIGURATION ARC 11-97-97-094 OA161 ORBITER + RAKES

ALPHA

PARAMETRIC VALUES

.000	BETA	-5.000	ELEVON	.000
6.000	AILRON	.000	EDFLAP	-7.170
12.000				
18.000				
24.000				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6000	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0700	

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PTI - PSJ ), DPQ214000

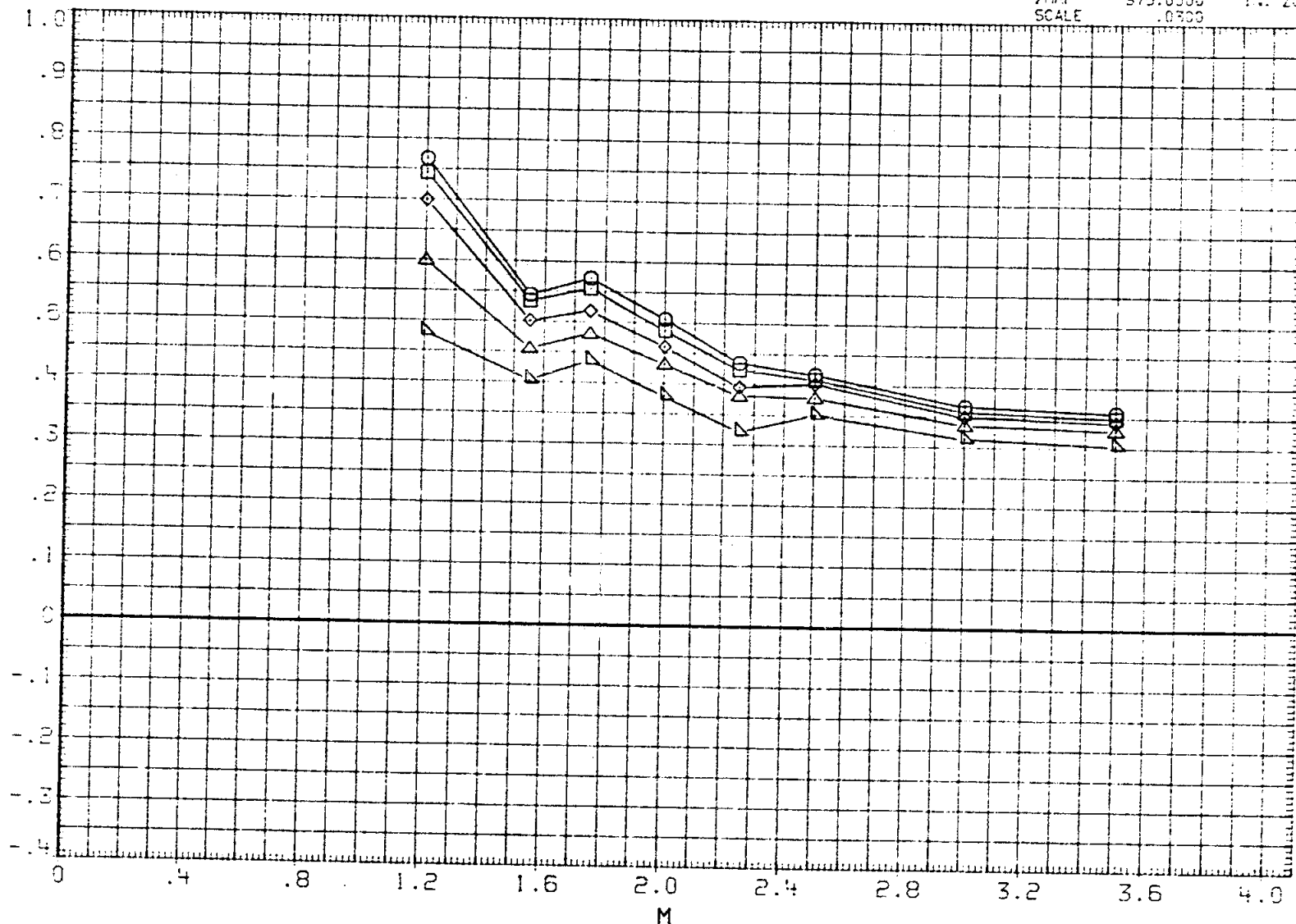


FIG. 12 EFFECT OF ALPHA ON STATIC P. DECREMENT  $PSJ - P / Q1J$  LEFT RAKE

PARAMETRIC VALUES			
ALPHA	BETA	-5.000	ELEVON
6.000	AILRON	.000	BOFLAP
12.000			
18.000			
24.000			

REFERENCE INFORMATION

SREF	2590.0000	50. FT.
LREF	474.8000	IN.
BREF	935.6000	IN.
XMPP	1076.6000	IN. XO
YMPP	.0000	IN. YO
ZMPP	376.0000	IN. ZO
SCALE	10000	

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PTI - PSJ ) , DPQ31P000

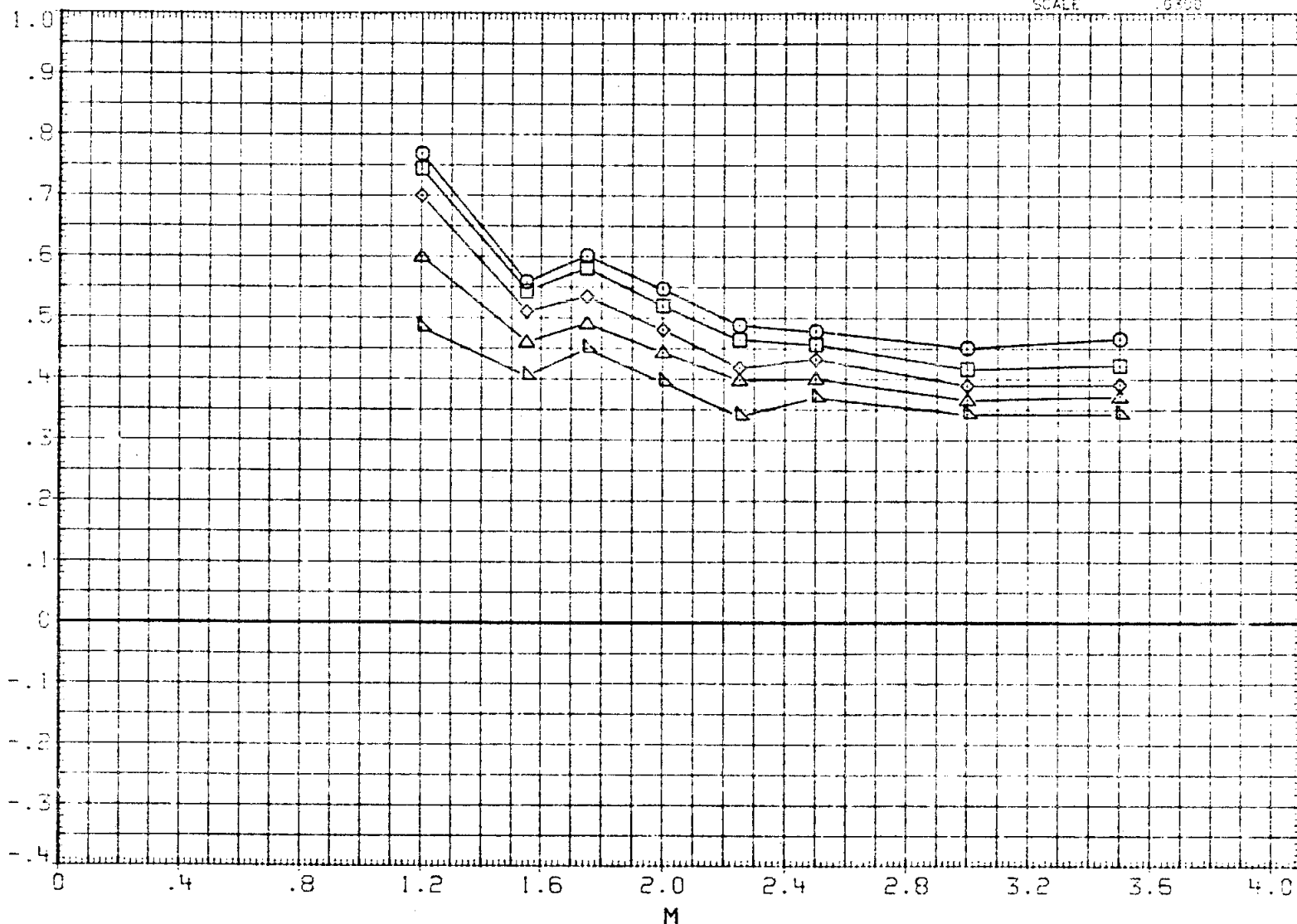


FIG. 12 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P / QIU LEFT RAKE

EE7D05  
SYMBOL

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

PARAMETRIC VALUES			
ALPHA	BETA	.000	ELEVON
.000	AILRON	.000	BOFLAP
6.000			-7.170
12.000			
18.000			
24.000			

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1075.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PTI - PSJ ) , DPQ137◇◇◇

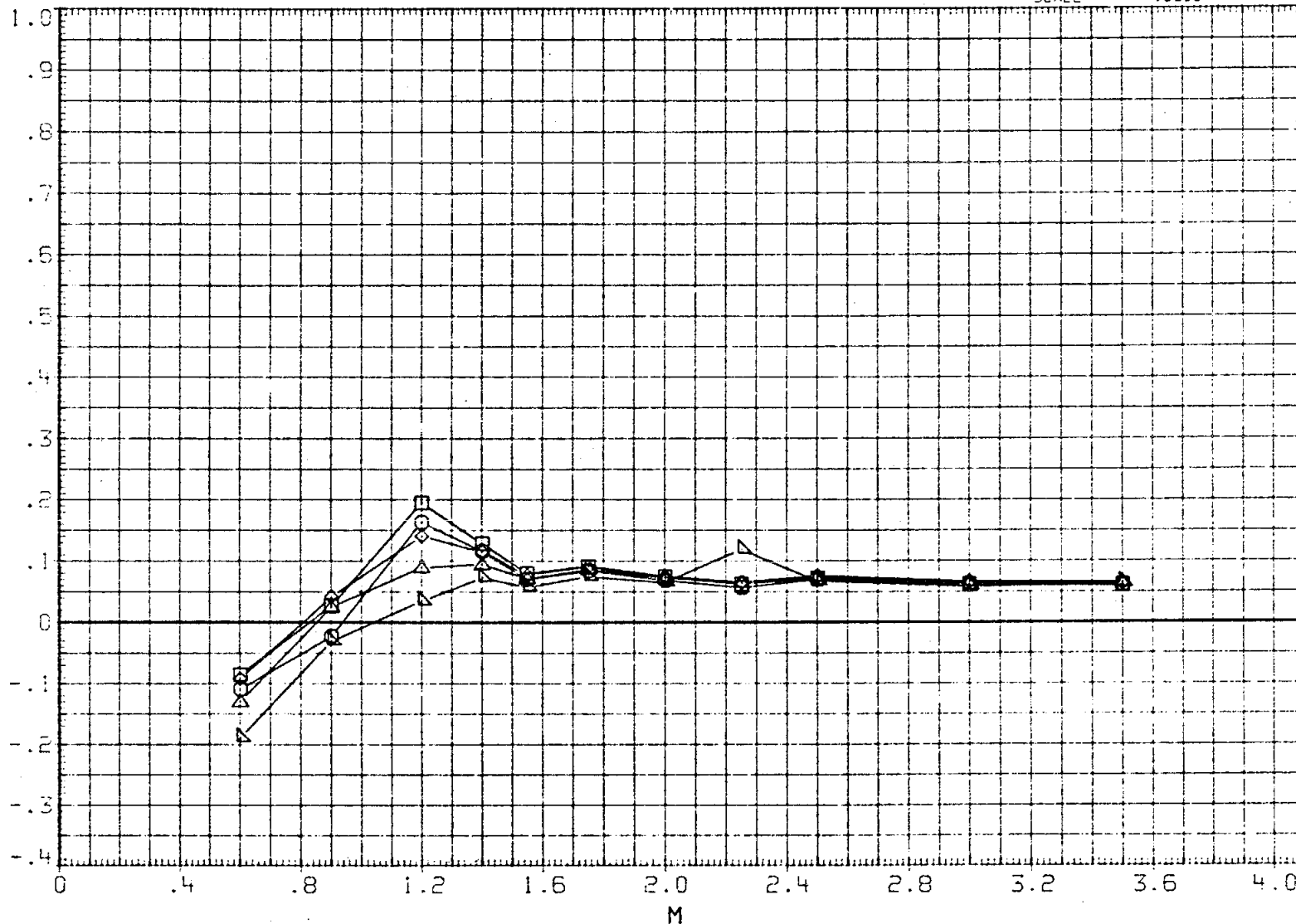


FIG. 12 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P / Q1J LEFT RAKE

PARAMETRIC VALUES			
ALPHA	BETA	.000	ELEVON
6.000	AILRON	.000	BDFLAP
12.000			-7.170
18.000			
24.000			

REFERENCE INFORMATION		
SREF	2690.0000	SO. IN.
LREF	474.8000	IN.
BREF	935.6000	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PTI-PSJ ) , DPQ237000

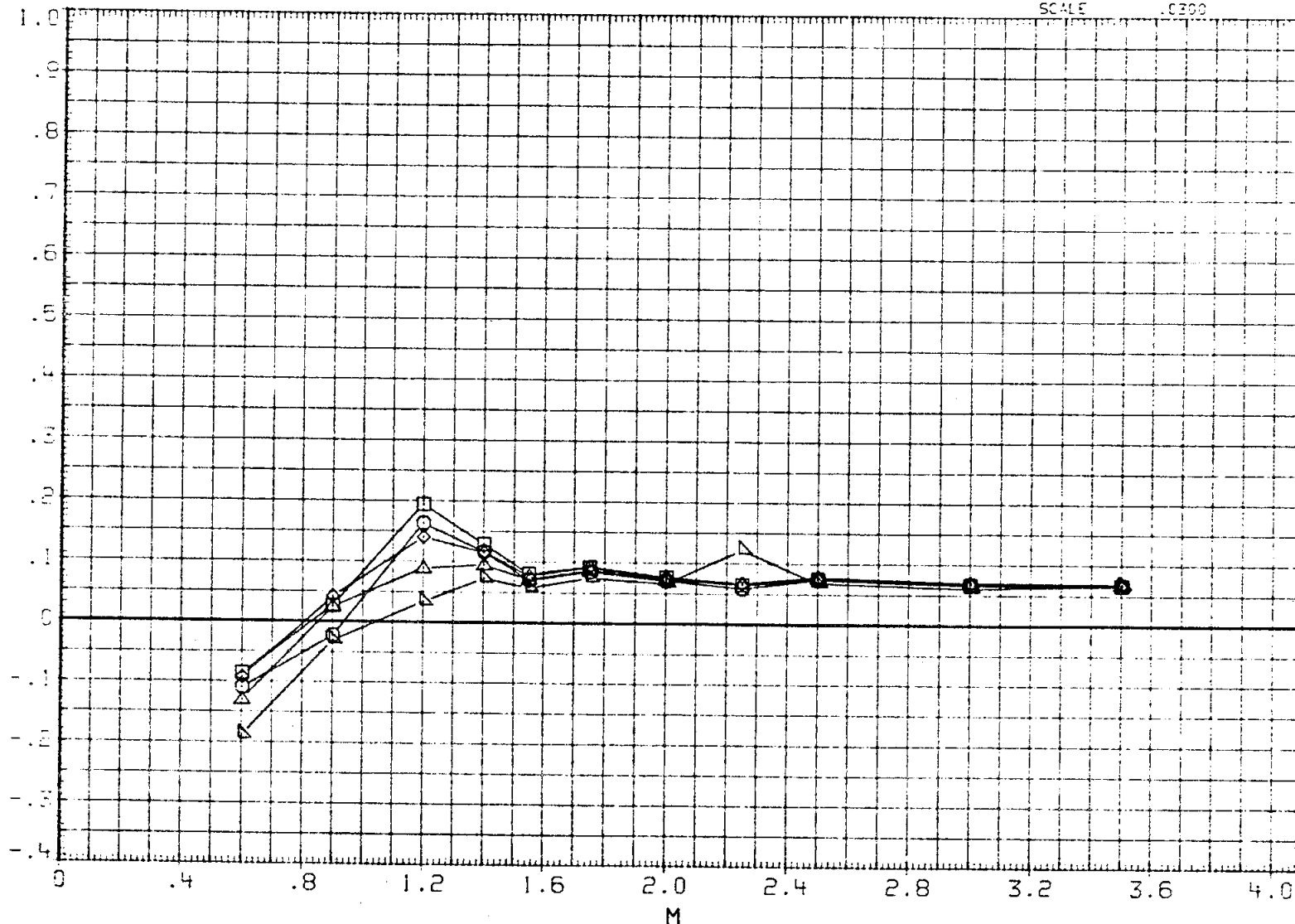


FIG. 12 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P / QIJ LEFT RAKE

EE7005  
SYMBOL

CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES

PARAMETRIC VALUES			
ALPHA	BETA	.000	ELEVON
.000	AILRON	.000	BDFLAP
6.000			-7.170
12.000			
18.000			
24.000			

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PT1-PSJ ), DPQ33

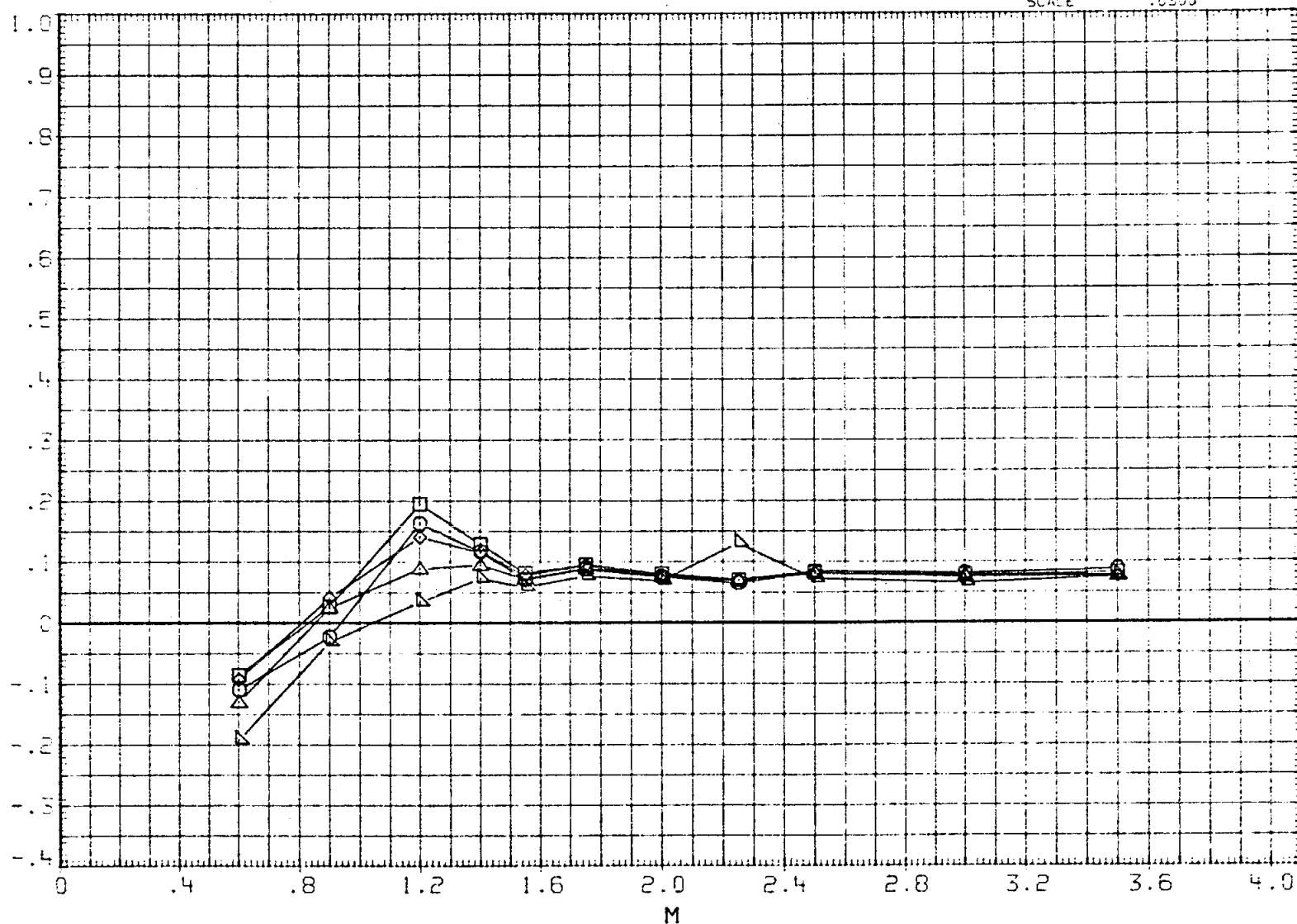


FIG. 12 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P / Q1J LEFT RAKE

CONFIGURATION ARC 11-97-87-094 04161 ORBITER + RAKES  
PARAMETRIC VALUES  
ALPHA .000 BETA .000 ELEVON .000  
6.000 AILRON .000 BDFLAP -7.170  
12.000  
18.000  
24.000

REFERENCE INFORMATION  
SPREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
YMPP 1076.6800 IN. YO  
YMRP .0000 IN. YO  
ZMPP 375.0000 IN. ZO  
SCALE .0300

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PTI-PSJ ), DPQ117D000

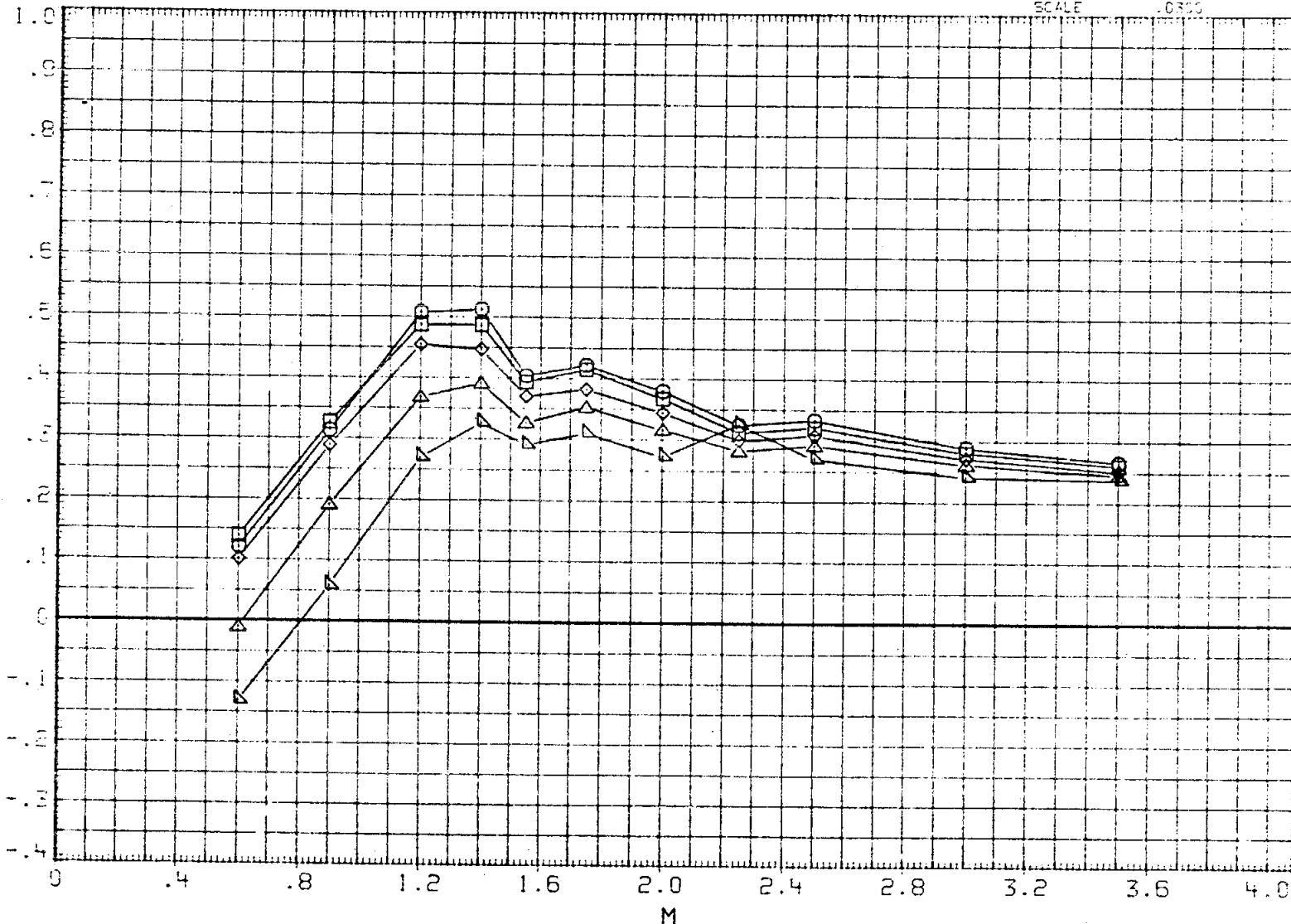


FIG. 12 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P /Q1J LEFT RAKE

EE7005  
SYMBOL

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PT1-PSJ ) , DPQ217000

CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES

PARAMETRIC VALUES			
ALPHA	BETA	ELEVON	.000
.000	AILRON	BDFLAP	-7.170
5.000			
12.000			
18.000			
24.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRRP	1076.6800	IN. XO
YMRRP	.0000	IN. YO
ZMRRP	375.0000	IN. ZO
SCALE	.0360	

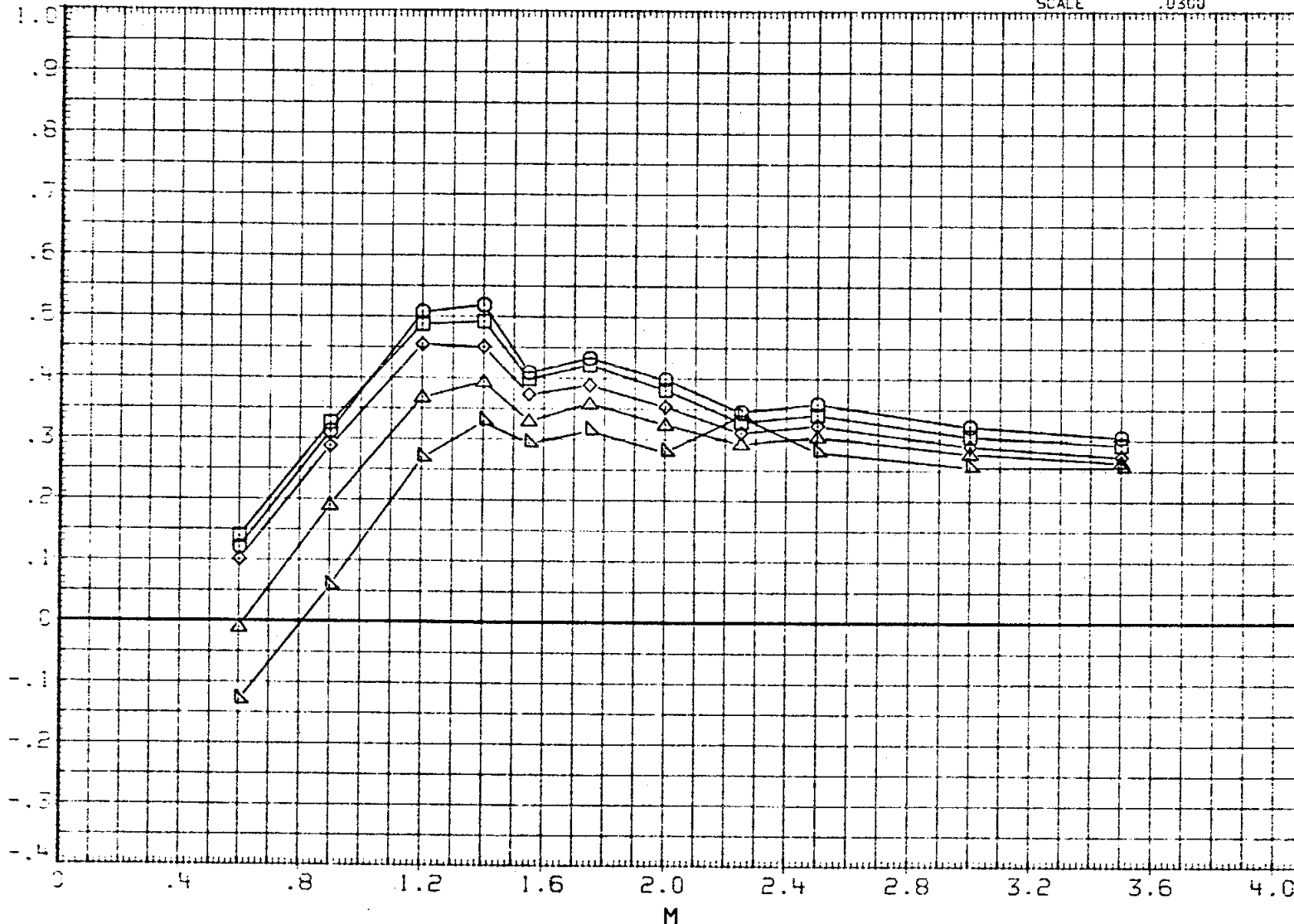


FIG. 12 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P /QIU LEFT RAKE

EE7E35  
SYMBOL

CONFIGURATION ARC 11-97-87-09H 0A161 ORBITER + RAKES

REFERENCE INFORMATION

ALPHA  
.000  
6.000  
12.000  
18.000  
24.000

BETA  
ATLON  
.000  
.000

PARAMETRIC VALUES  
ELEVON  
BDFLAP  
.000  
-7.170

SREF 2690.0000 50.F.F.  
LREF 474.0000 IN.  
BREF 936.0000 IN.  
XMRP 1075.6800 IN. X0  
YMRP 1000.0000 IN. Y0  
ZMRP 375.0000 IN. Z0  
SCALE 10000

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PT1-PSJ ) , DPQ317000

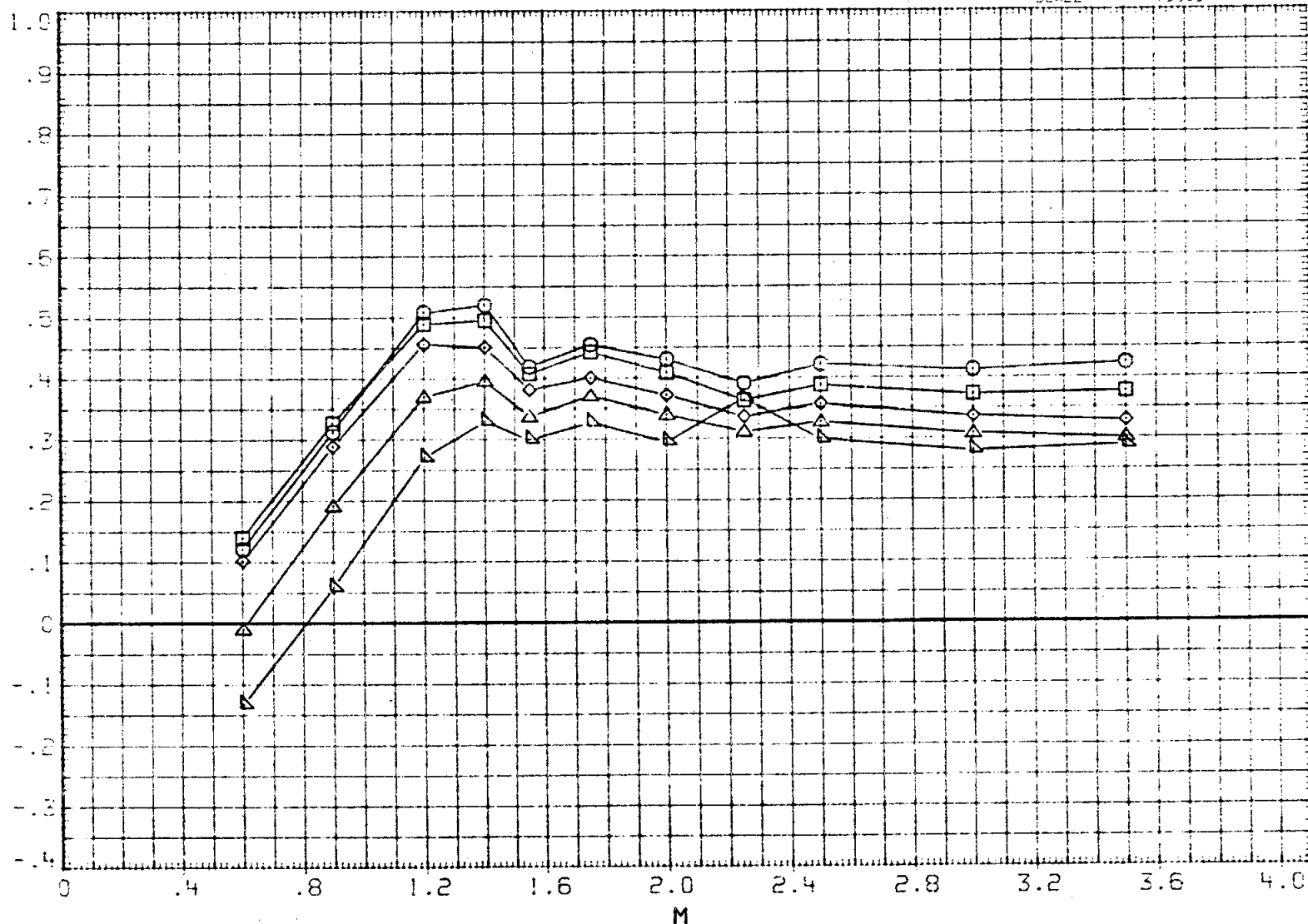


FIG. 12 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P /Q1J LEFT RAKE



57007  
 SYMBOL  
 STATIC PRESSURE DECREMENT (PSJ - P) / (PT1 - PSJ), DPQ13

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES  
 ALPHA  
 .000  
 6.000  
 12.000  
 18.000  
 24.000

PARAMETRIC VALUES  
 BETA 5.000  
 ATLRON .000  
 ELEVON .000  
 BSLAP -7.170

REFERENCE INFORMATION  
 SREF 2690.0000 SO.FT.  
 LREF 474.8000 IN.  
 BREF 936.6900 IN.  
 XMPP 1076.6800 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE .0300

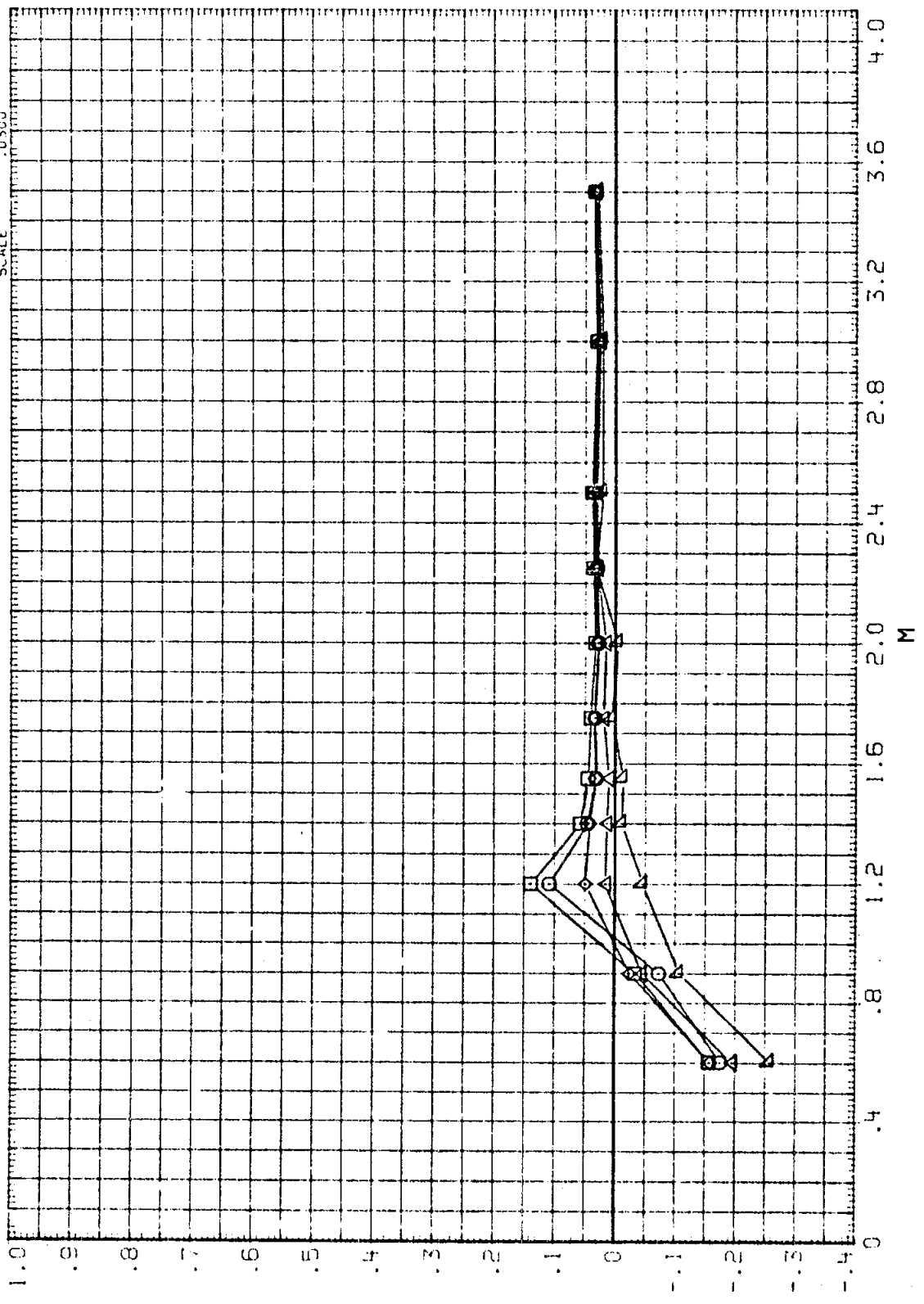


FIG. 12 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P / Q1J LEFT RAKE  
 PAGE 267

EE7007  
SYMBOL

CONFIGURATION ARC 11-97-87-09-0161 ORBITER - RAKES  
PARAMETRIC VALUES  
ALPHA .000 BETA 5.000 ELEVON .000  
6.000 AILRON .000 BDFLAP -7.170  
12.000  
18.000  
24.000

REFERENCE INFORMATION  
SRF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. X0  
YMRP .0000 IN. Y0  
ZMRP 375.0000 IN. Z0  
SCALE .6300

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PT1-PSJ ) , DPQ23 / Q11

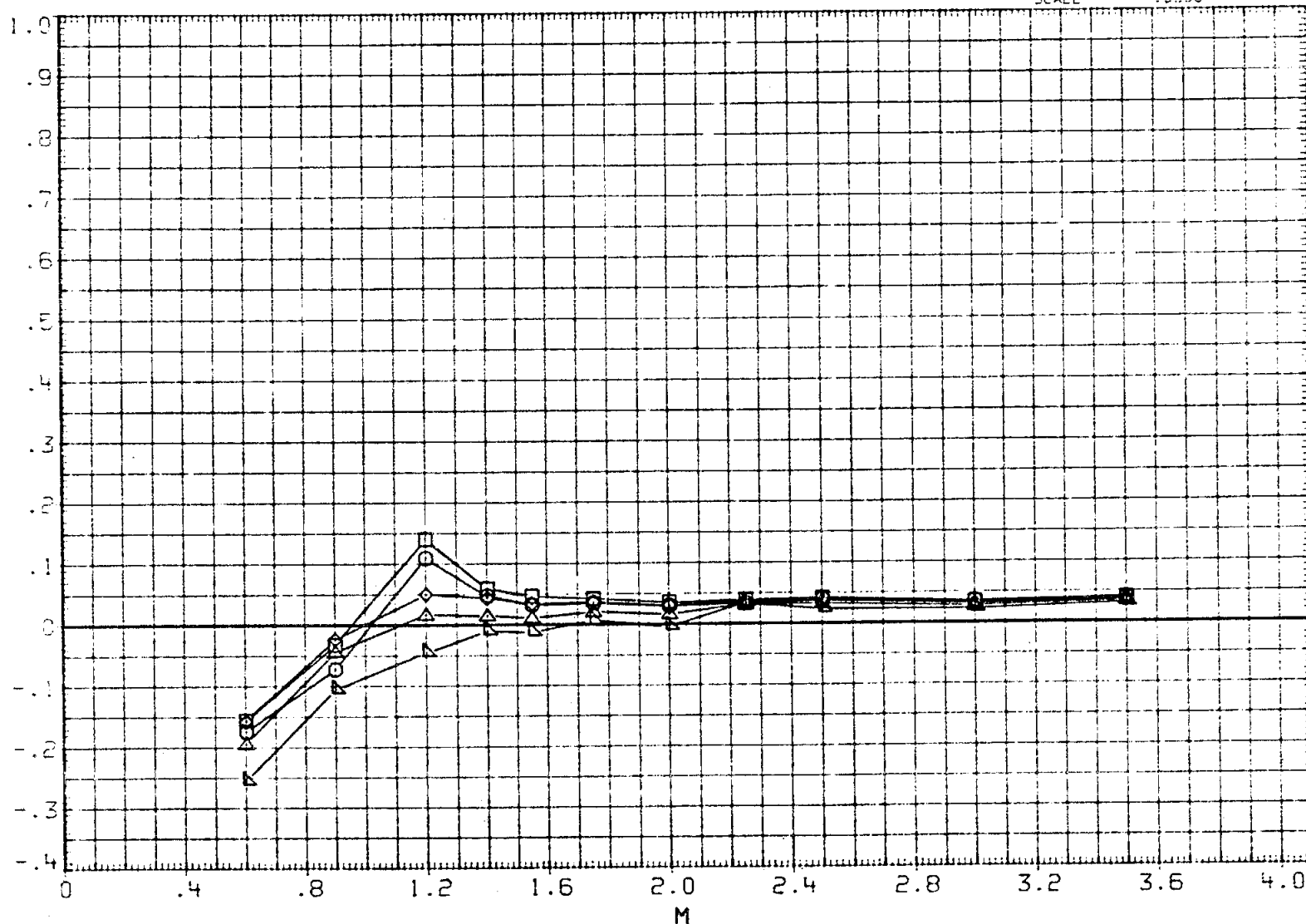


FIG. 12 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P / Q11 LEFT RAKE

STATIC PRESSURE DECREMENT (PSJ - P) / (PTI - PSJ), DPQ337D<O

ALPHA		PARAMETRIC VALUES		
.000	BETA	5.000	ELEVON	.000
6.000	AIRLON	.000	BOFLAP	-7.170
12.000				
18.000				
24.000				

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

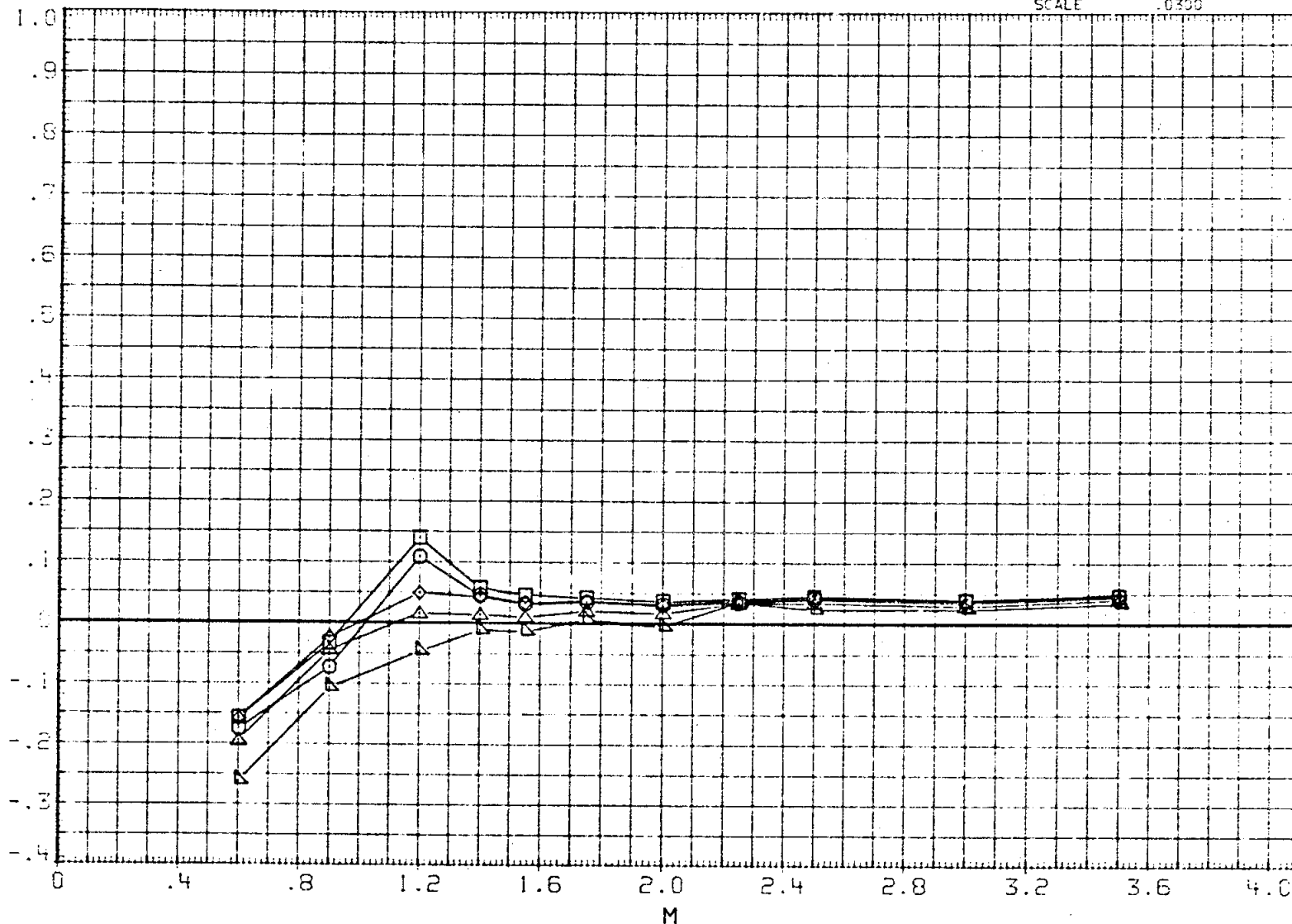


FIG. 12 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P /QIJ LEFT RAKE

EE7D07  
SYMBOL

CONFIGURATION APC 11-97-87-094 OAT161 ORBITER + RAKES  
PARAMETRIC VALUES  
ALPHA 1.000 BETA 5.000 ELEVON .000  
6.000 AILERON .000 BOFLAP -7.170  
12.000  
18.000  
24.000

REFERENCE INFORMATION  
SPREF 2699.0000 50. FT.  
LPREF 474.6000 IN.  
BPREF 936.6800 IN.  
XMRP 1076.6600 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PT1-PSJ ) , DPQ1170000

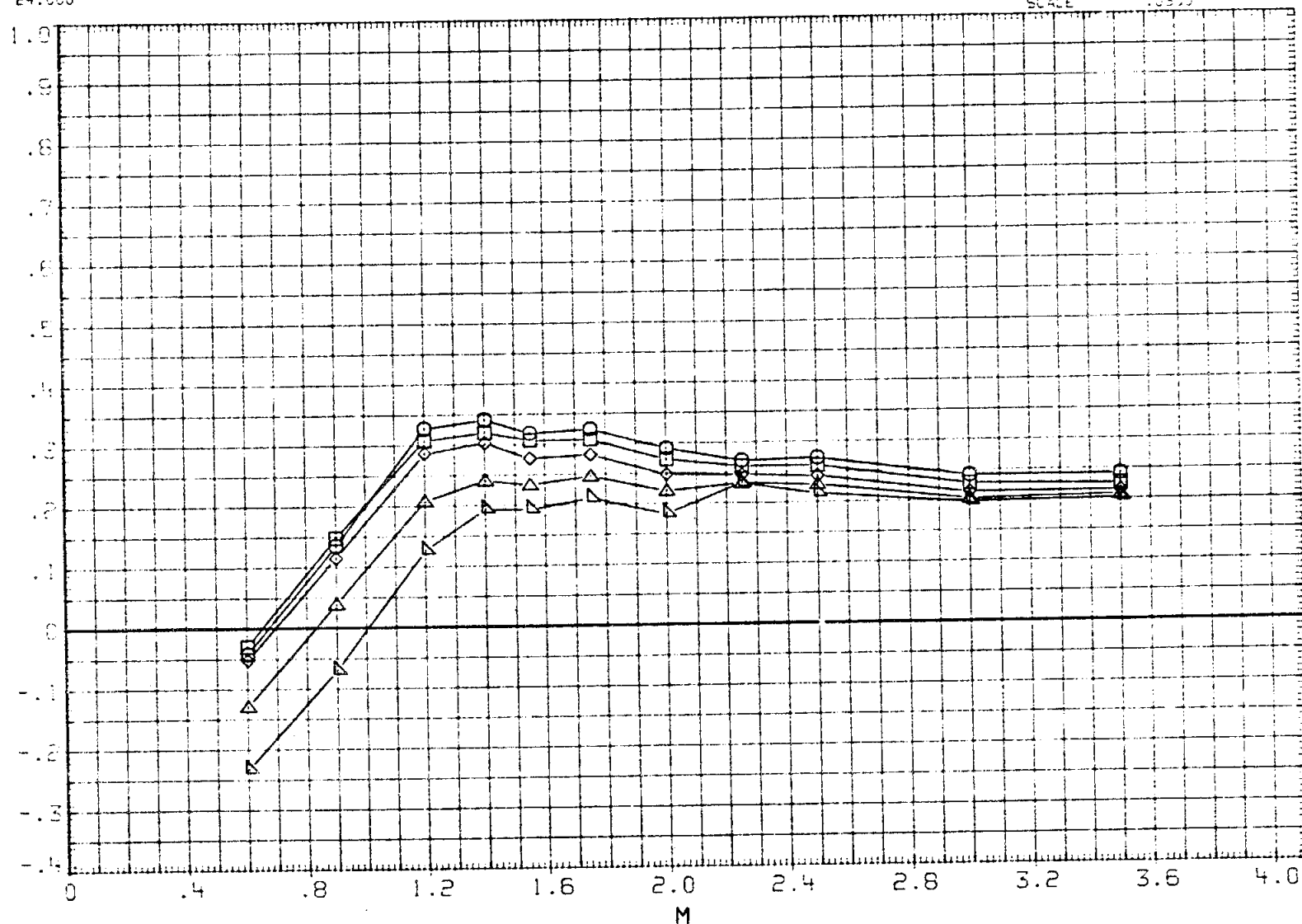


FIG. 12 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P /Q1U LEFT RAKE

EE7007  
SYMBOL

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

PARAMETRIC VALUES			
ALPHA	BETA	ELEVON	ELEVON
.000	5.000	.000	.000
6.000	.000	BDFLAP	-7.170
12.000			
18.000			
24.000			

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	936.6000	IN.
XMRP	1076.6000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PTI - PSJ ) , DPQ21

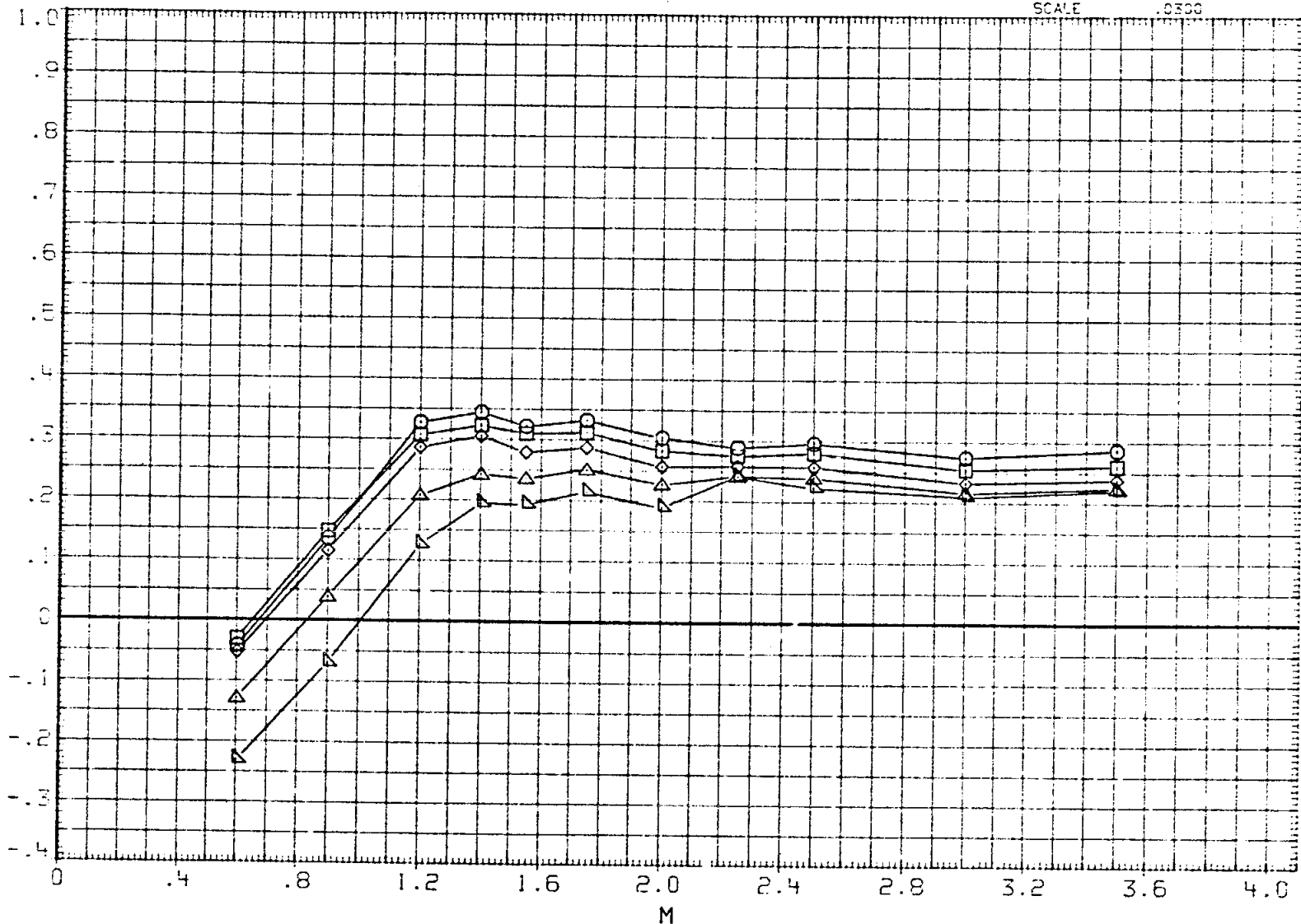


FIG. 12 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P /Q1J LEFT RAKE

EE700V  
SYMBOL

CONFIGURATION ARC 11-97-87-094 CA161 ORBITER - RAKE  
PARAMETRIC VALUES  
ALPHA .000 BETA 5.000 ELEVON .000  
6.000 AILRON .000 BDFLAP -7.170  
12.000  
18.000  
24.000

REFERENCE INFORMATION  
SREF 2690.0000 50. FT.  
LREF 474.0000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0000

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PT1-PSJ ) , DPQ31

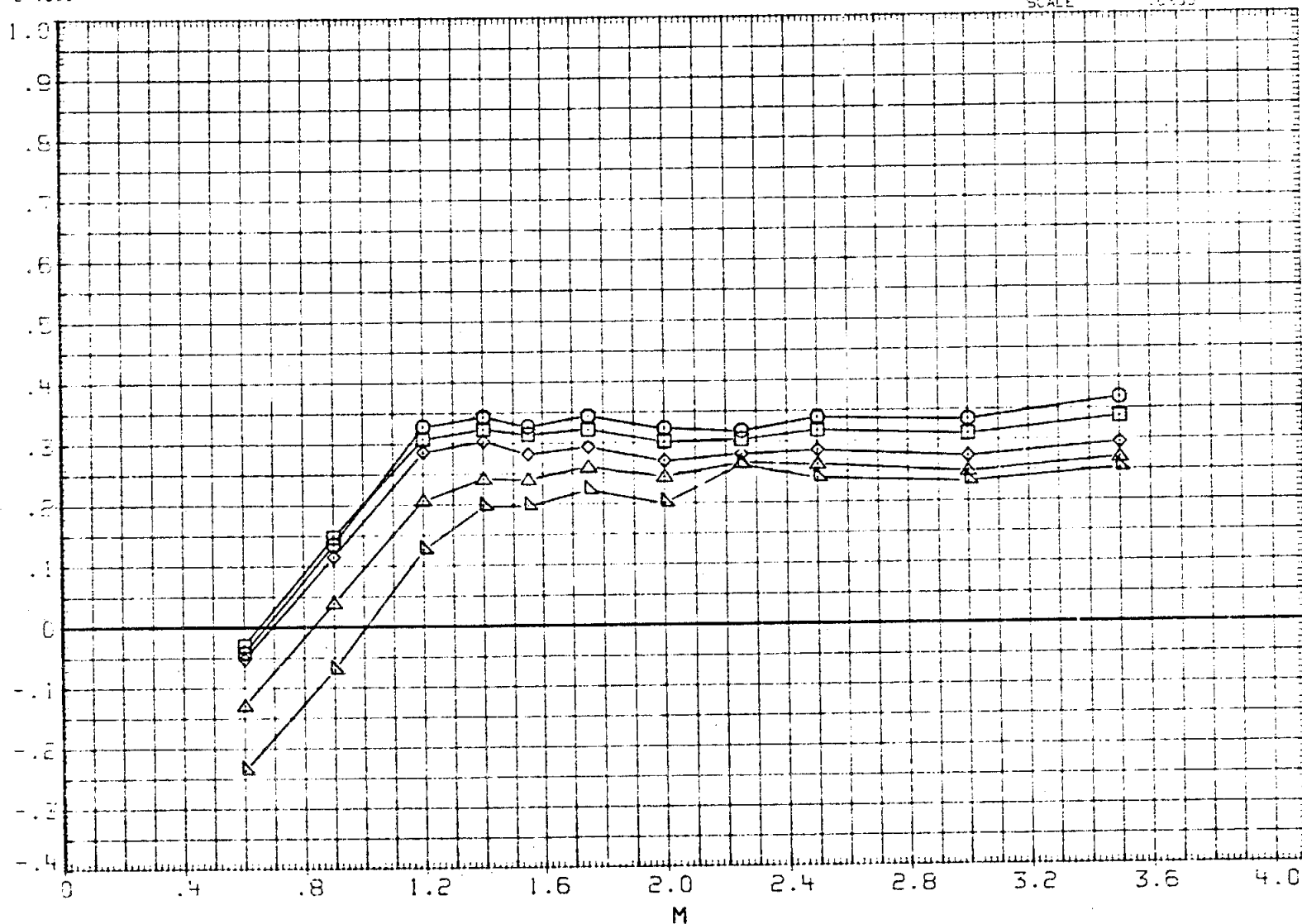


FIG. 12 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P / Q1U LEFT RAKE

BET802 CONFIGURATION ARC 11-97-87-094 0A161 OPBITER + RAKES

SYMBOL

ALPHA

PARAMETRIC VALUES

.000

BETA

-5.000

ELEVON

.000

12.000

AILRON

.000

BDPLAP

-7.170

24.000

REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.

LREF 474.8000 IN.

BREF 936.6600 IN.

XMPP 1076.6800 IN. XO

YMPP .0000 IN. YO

ZMPP 375.0000 IN. ZO

SCALE .0000

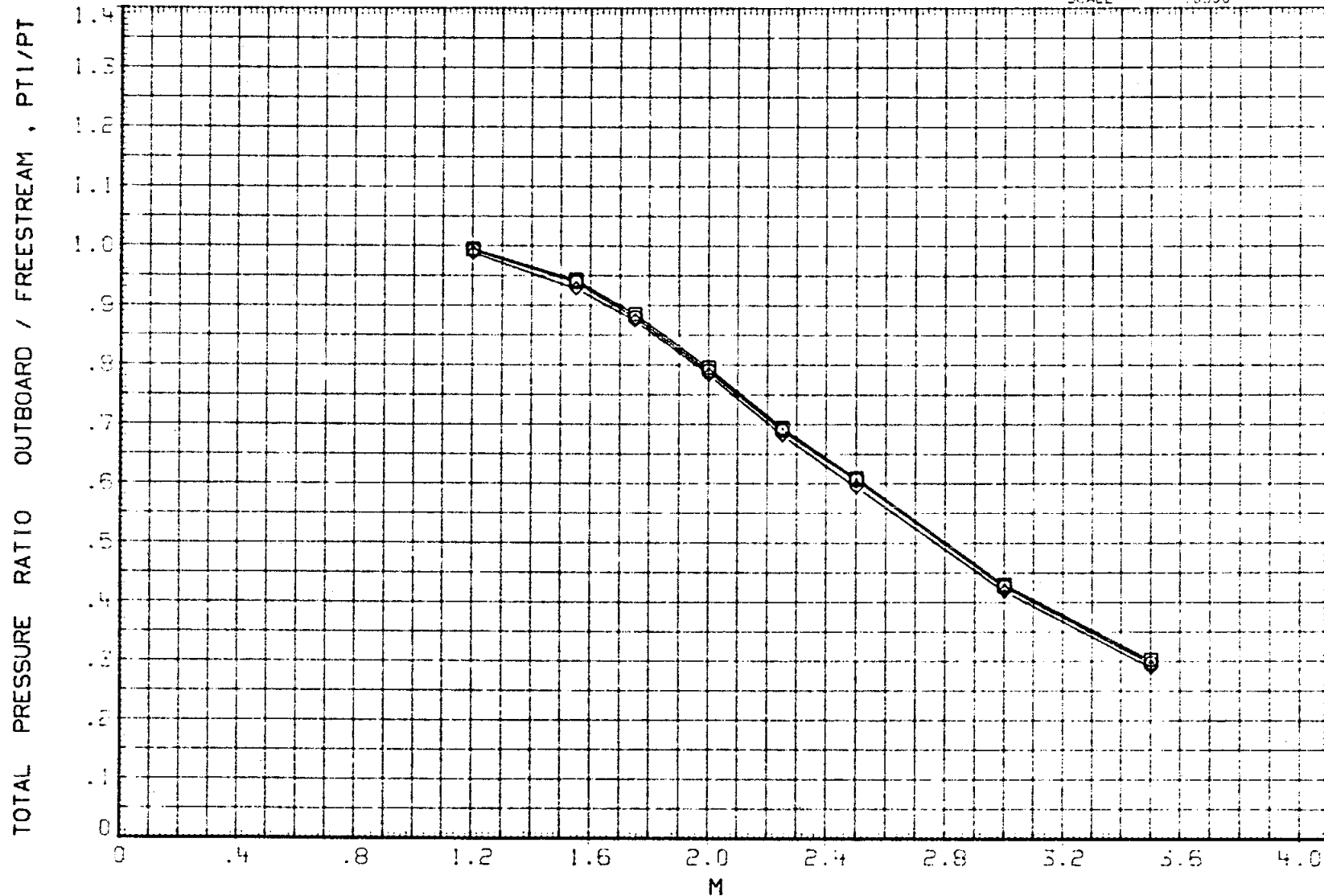


FIG. 13 EFFECT OF ALPHA ON TOTAL PRESSURE RATIO PTI/PT LEFT RAKE

B00007 CONFIGURATION APC 11-97-87-00H 0A161 ORBITER - RAKE  
 SYMBOL ALPHA PARAMETRIC VALUES  
 000 .000 BETA -5.000 ELEVON .000  
 12.000 AIRLON .000 BOFLAP -7.170  
 24.000

REFERENCE INFORMATION  
 SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 938.5800 IN.  
 YMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0000

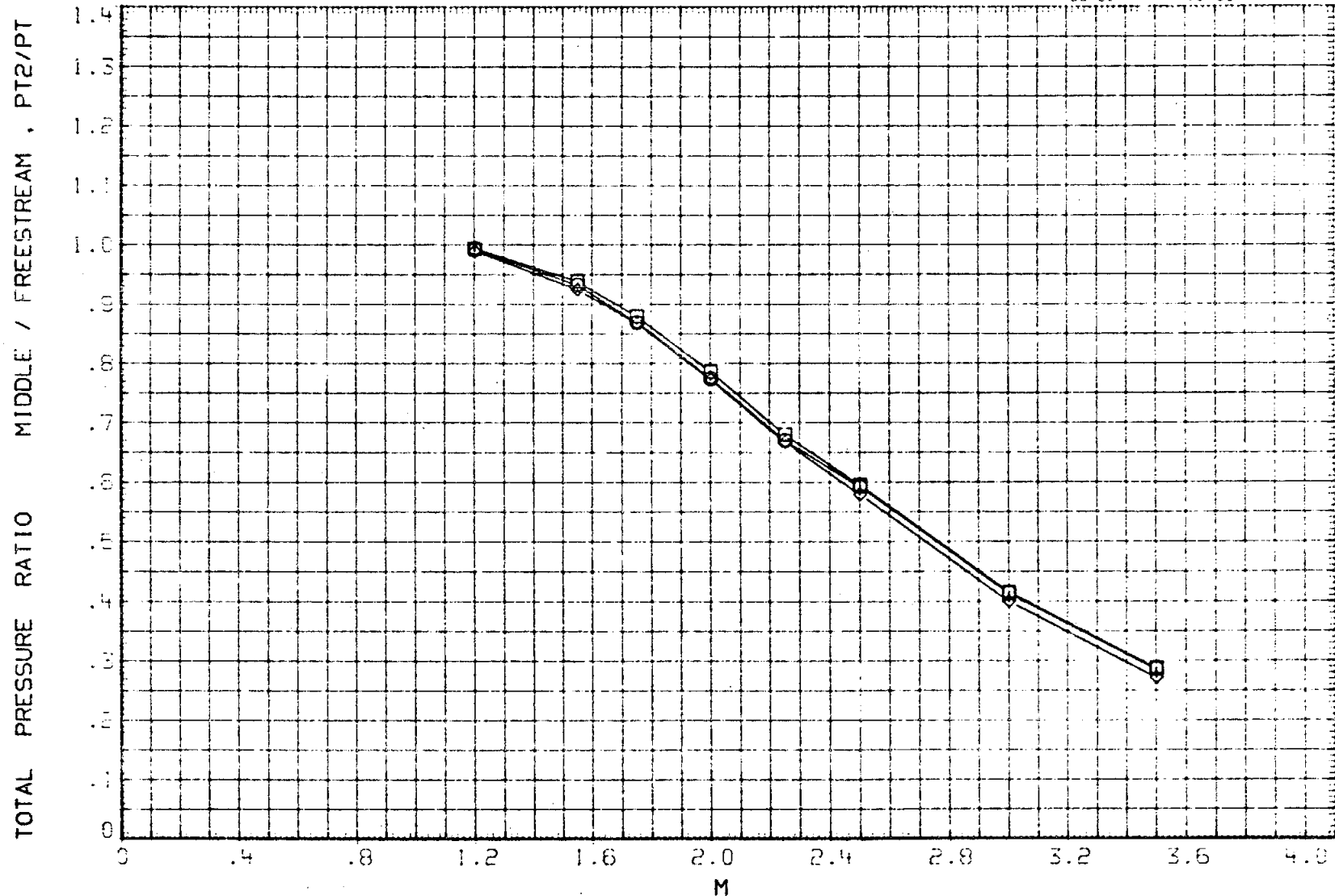


FIG. 13 EFFECT OF ALPHA ON TOTAL PRESSURE RATIO PT1/PT LEFT RAKE



BE7803 CONFIGURATION ARC 11-97-87-094 OA16: ORBITER + RAKES  
 SYMBOL ALPHA PARAMETRIC VALUES  
 .000 BETA -5.000 ELEVON .000  
 12.000 AILRON .000 BOFLAP -7.170  
 24.000

REFERENCE INFORMATION  
 SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.5800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE 10000

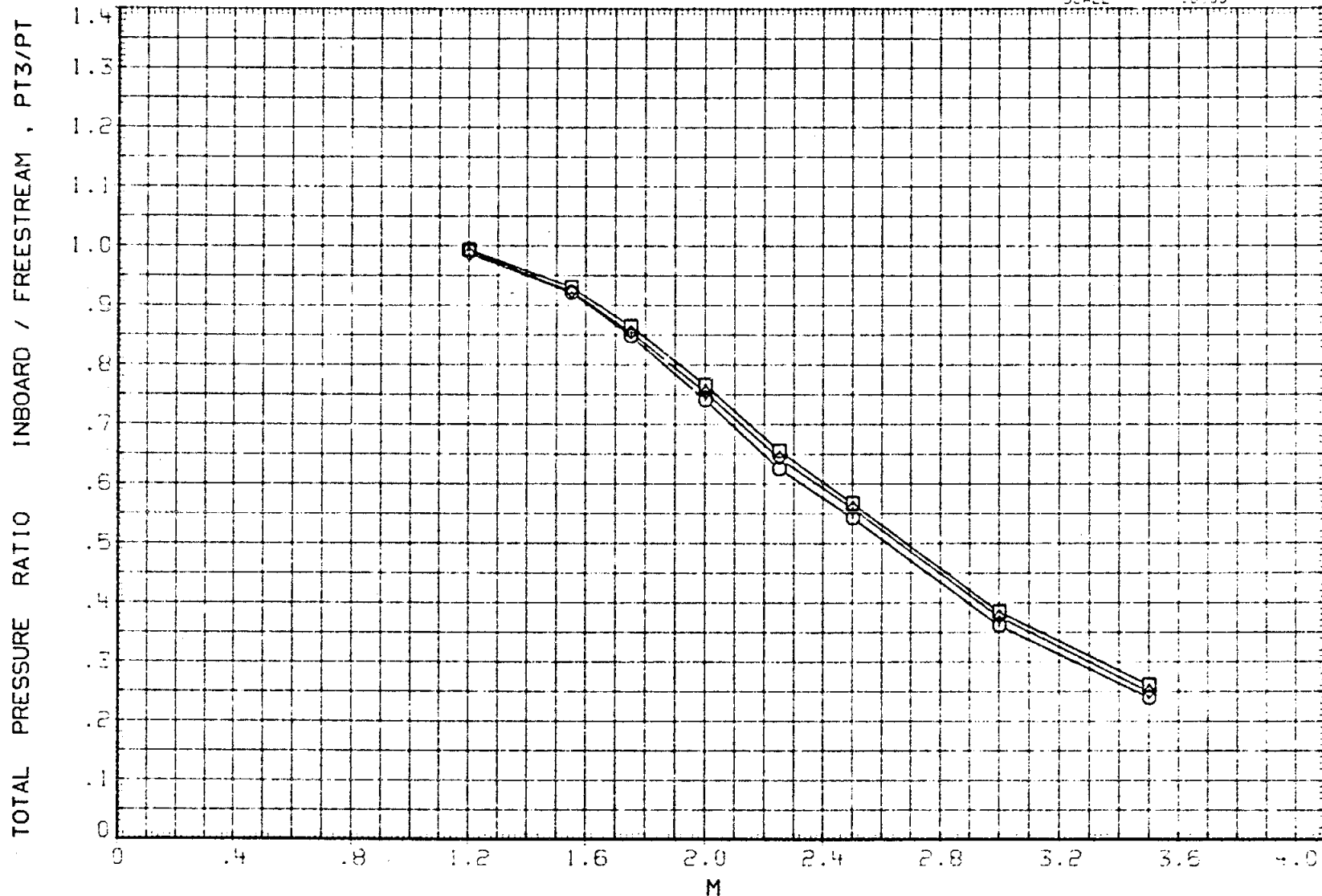


FIG. 13 EFFECT OF ALPHA ON TOTAL PRESSURE RATIO PTI/PT LEFT RAKE

6E7008  
 SYM 001  
 000  
 000

CONFIGURATION ARC 11-97-67-094 CAIGI ORBITER - RAKES

PARAMETRIC VALUES			
ALPHA	BETA	ELEVON	
.000	.000	.000	
12.000	ATLON	BOFLAP	-7.170
24.000			

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	935.4000	IN.
XMRP	1076.5600	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0000	

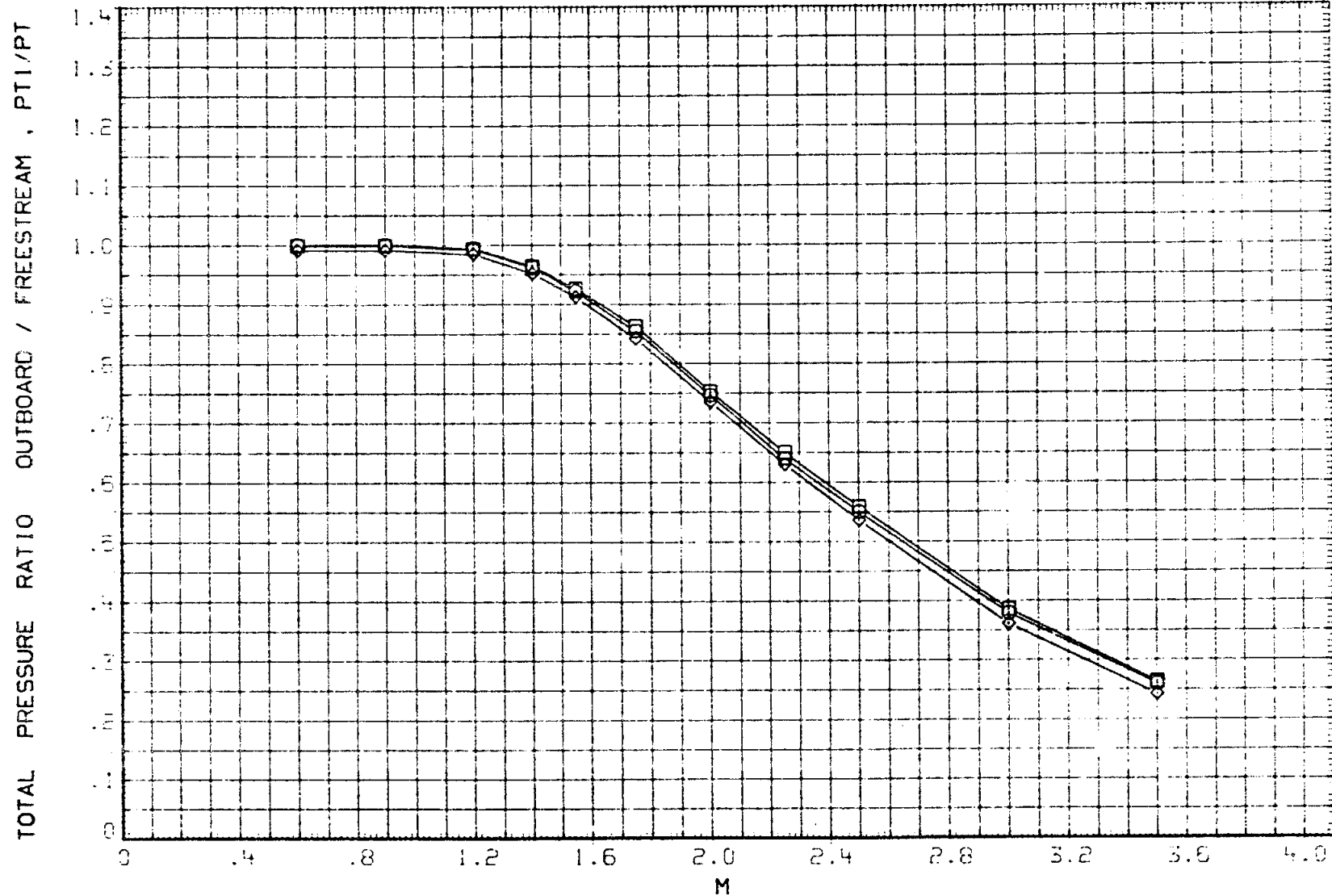


FIG. 13 EFFECT OF ALPHA ON TOTAL PRESSURE RATIO PTI/PT LEFT RAKE

BE7805 CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

SYMBOL

□ ○

ALPHA

.000  
12.000  
24.000

BETA  
ATLRON

PARAMETRIC VALUES

.000 ELEVON .000  
.000 BOFLAP -7.170

REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 935.6800 IN.  
XMRP 1076.6800 IN. X0  
YMRP .0000 IN. Y0  
ZMRP 375.0000 IN. Z0  
SCALE .0300

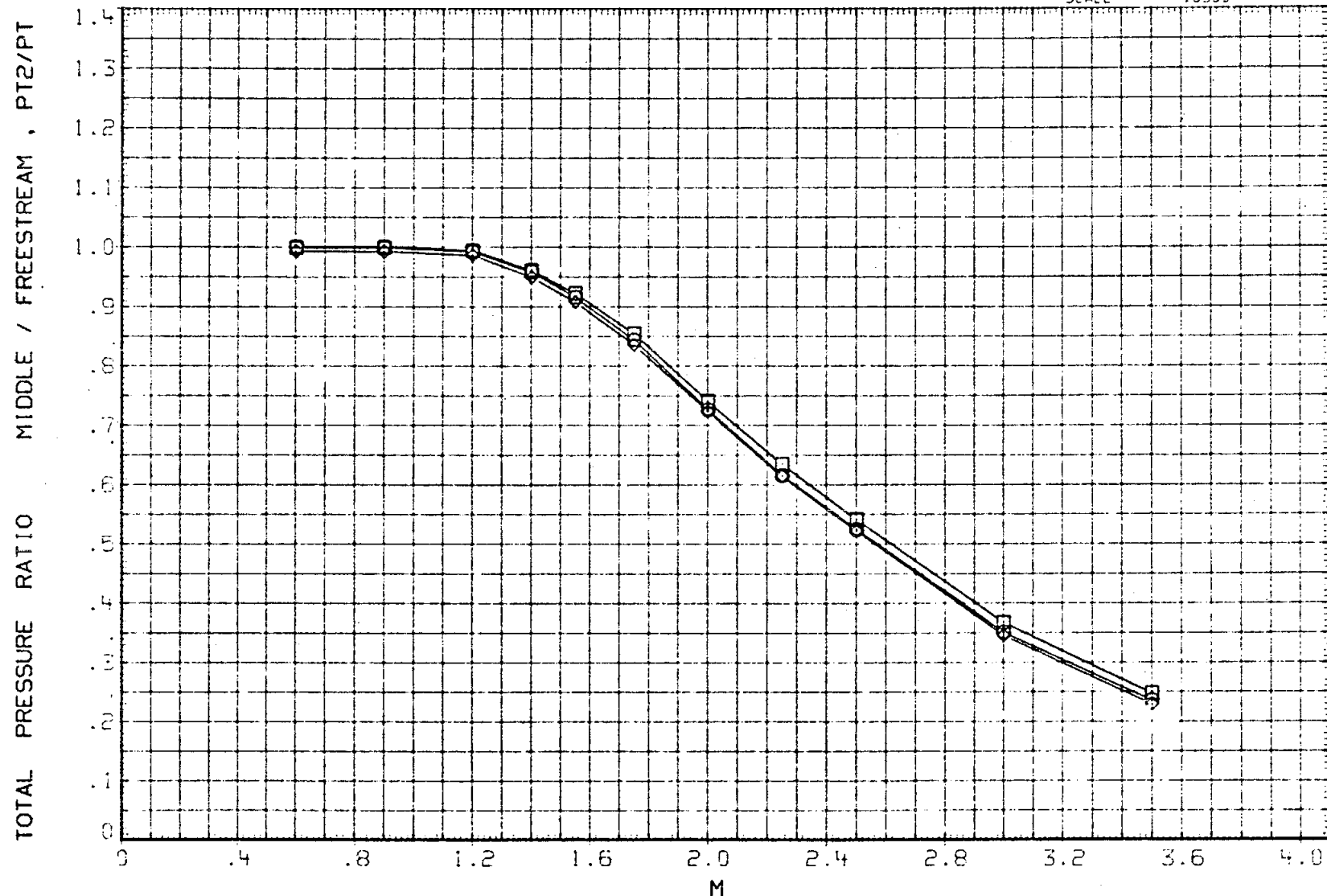


FIG. 13 EFFECT OF ALPHA ON TOTAL PRESSURE RATIO PTI/PT LEFT RAKE

BETECS CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES  
 SYMBOL ALPHA PARAMETRIC VALUES  
 .000 BETA .000 ELEVON .000  
 12.000 AILRON .000 BDFLAP -7.170  
 P 300

REFERENCE INFORMATION  
 SREF 2690.0000 SQ. FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0000

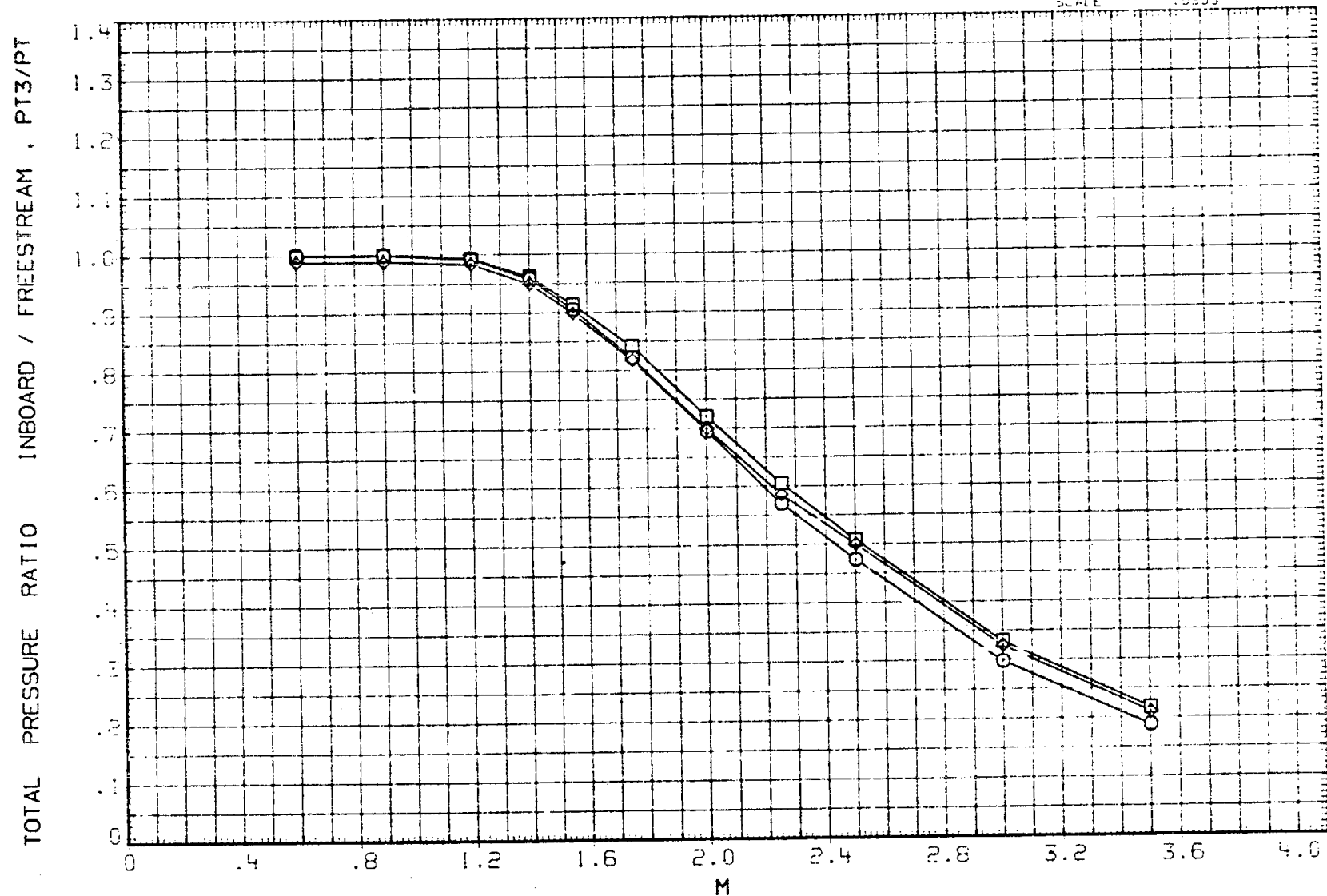


FIG. 13 EFFECT OF ALPHA ON TOTAL PRESSURE RATIO PT1/PT LEFT RAKE

BE7807 CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

SYMBOL

ALPHA

PARAMETRIC VALUES

.000

BETA

5.000

ELEVON

.000

12.000

AILRON

.000

BDFLAP

-7.170

24.000

REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.

LREF 474.8000 IN.

BREF 936.6000 IN.

XMPP 1076.6800 IN. XO

YMPP .0000 IN. YO

ZMPP 375.0000 IN. ZO

SCALE .0300

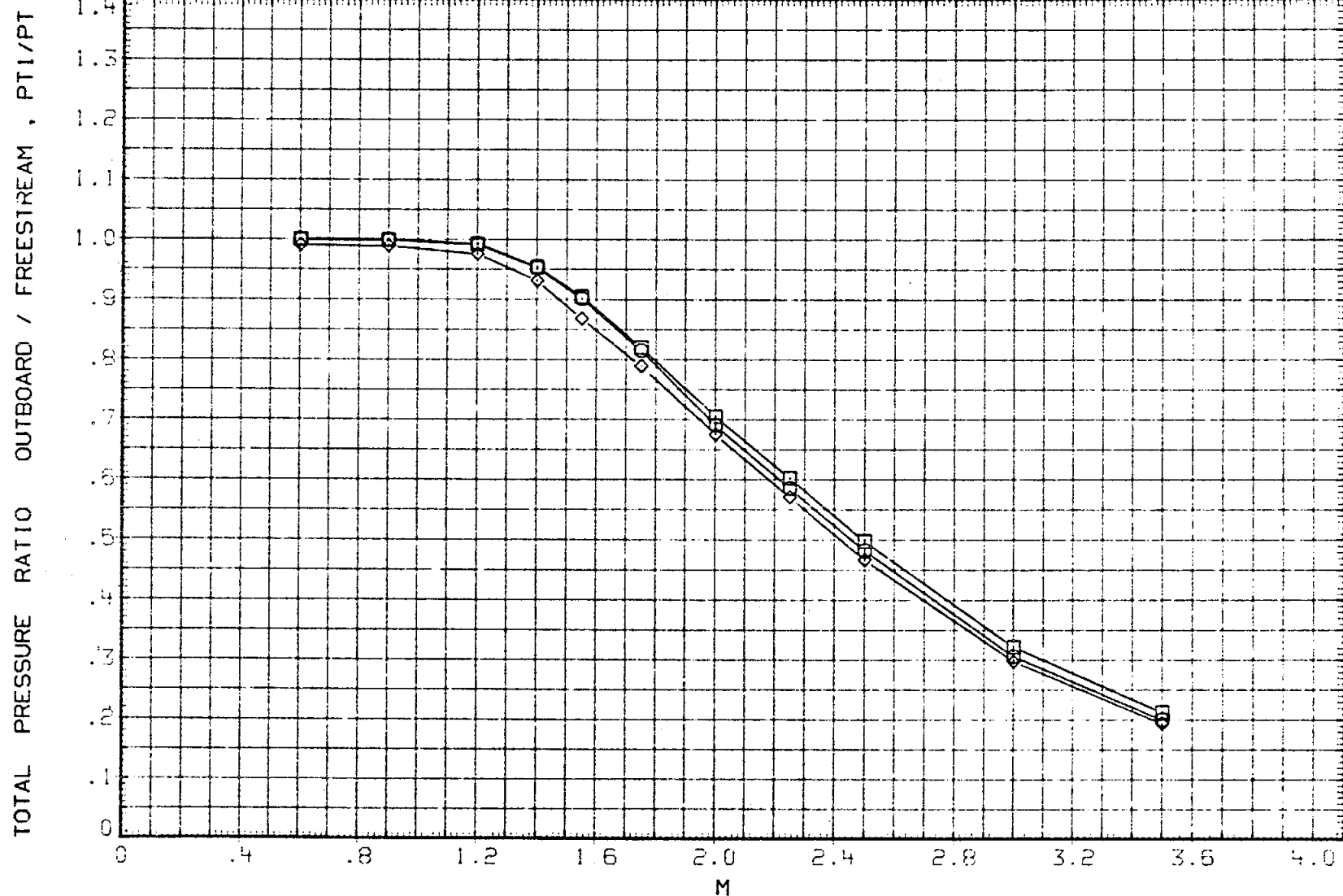


FIG. 13 EFFECT OF ALPHA ON TOTAL PRESSURE RATIO PT1/PT LEFT RAKE

SYMBOL

PARAMETRIC VALUES

ALPHA .000 BETA 5.000 ELEVON .000  
12.000 AILRON .000 BOFLAP -7.170  
24.000

REFERENCE INFORMATION

SREF 2690.0000 60.FT.  
LREF 474.0000 IN.  
BREF 936.6800 IN.  
XREF 1076.6800 IN. XO  
YREF .0000 IN. YO  
ZREF 376.0000 IN. ZO  
SCALE .0500

TOTAL PRESSURE RATIO MIDDLE / FREESTREAM , PT2/PT1

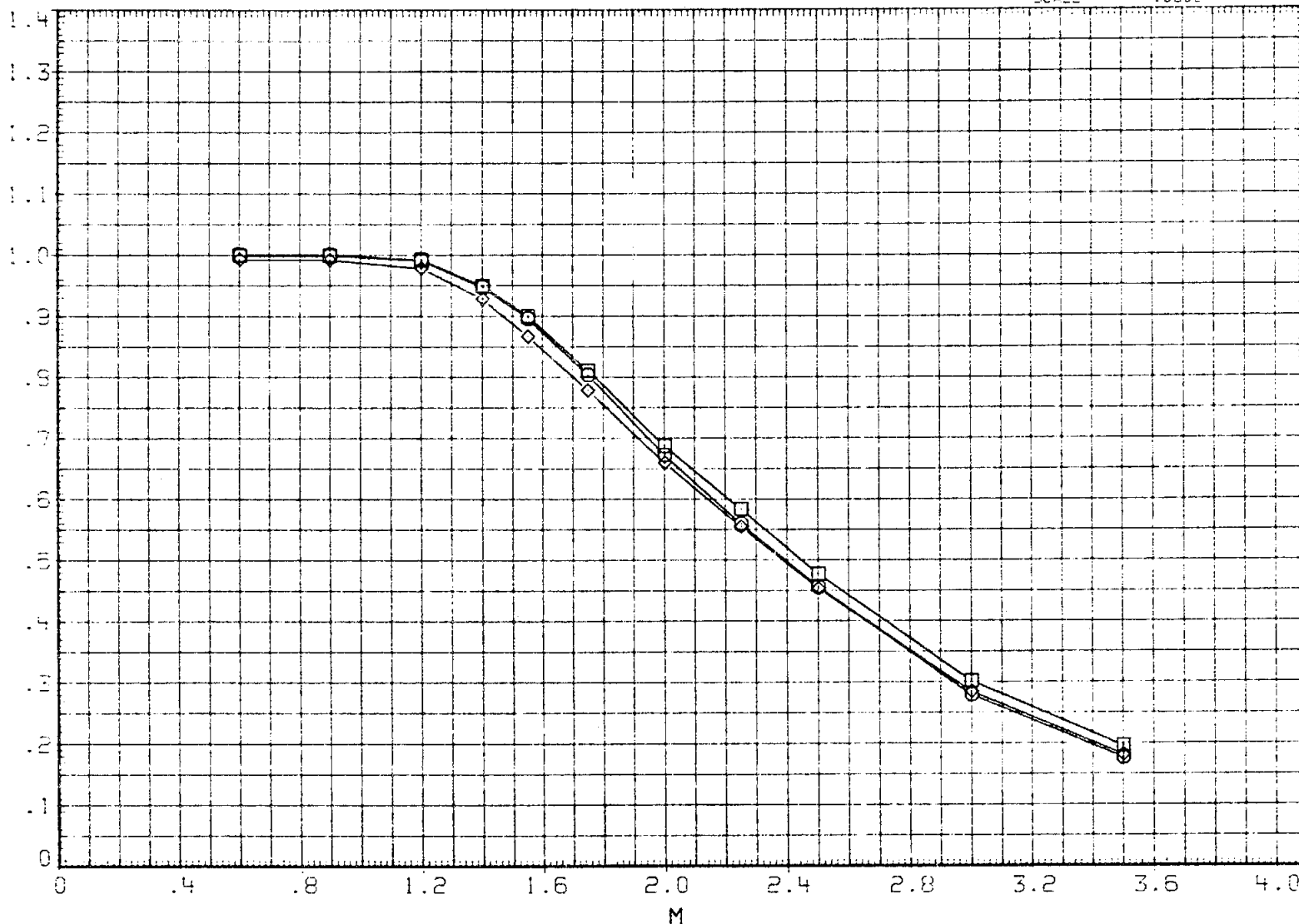


FIG. 13 EFFECT OF ALPHA ON TOTAL PRESSURE RATIO PT1/PT LEFT RAKE

BE7807 CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES  
 SYMBOL ALPHA PARAMETRIC VALUES  
 .000 BETA 5.000 ELEVON .000  
 12.000 AILRON .000 BDFLAP -7.170  
 24.000

REFERENCE INFORMATION  
 SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. XC  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0390

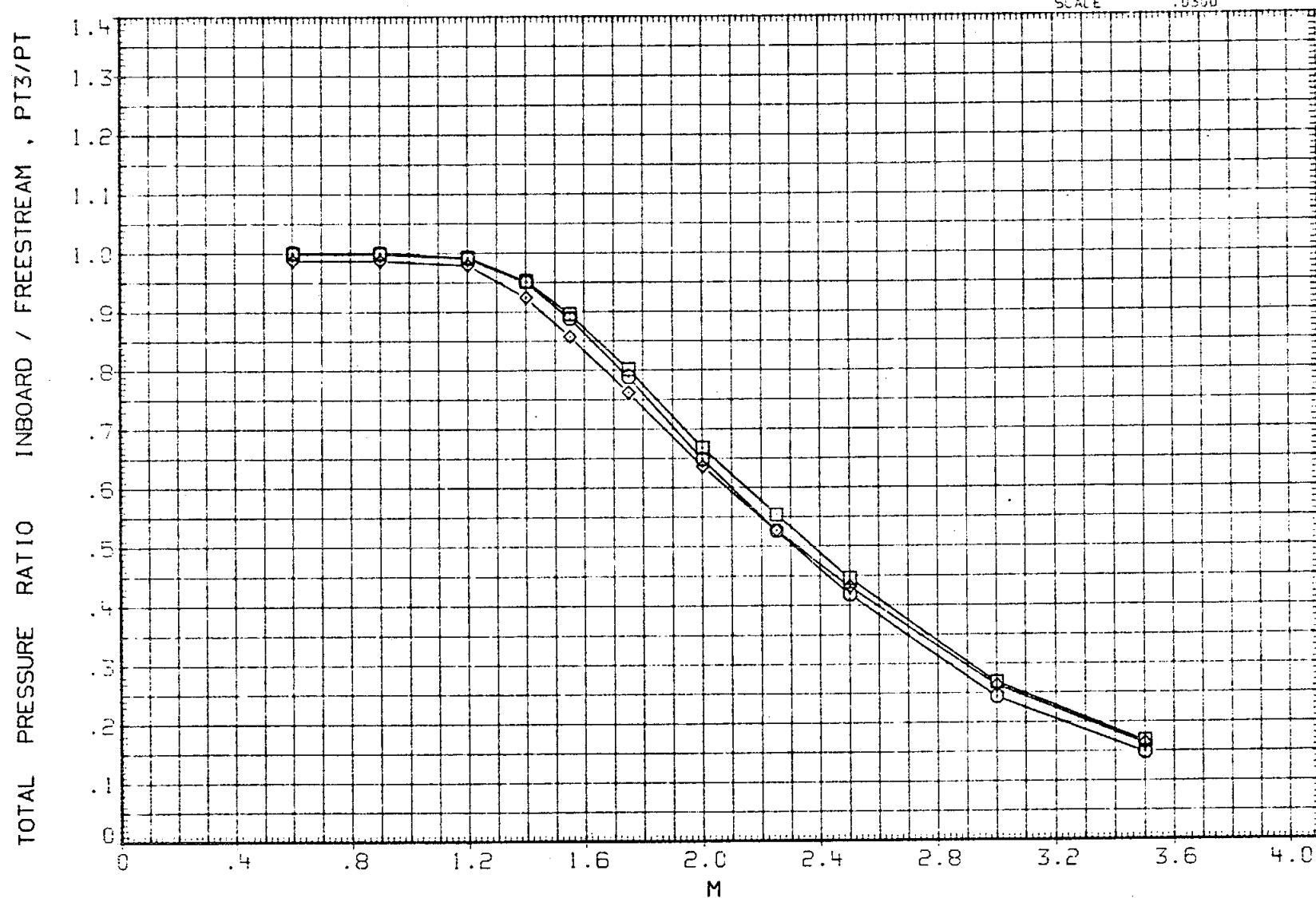


FIG. 13 EFFECT OF ALPHA ON TOTAL PRESSURE RATIO PTI/PT LEFT RAKE

SYMBOL

PARAMETRIC VALUES

ALPHA	BETA	ELEVON	BDFLAP
.000	-5.000	.000	
12.000	ATLON	.000	-7.170
24.000			

REFERENCE INFORMATION

SREF	2600.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

LOCAL MACH NUMBER PTI INBOARD PSJ XO= 8.1 . M42

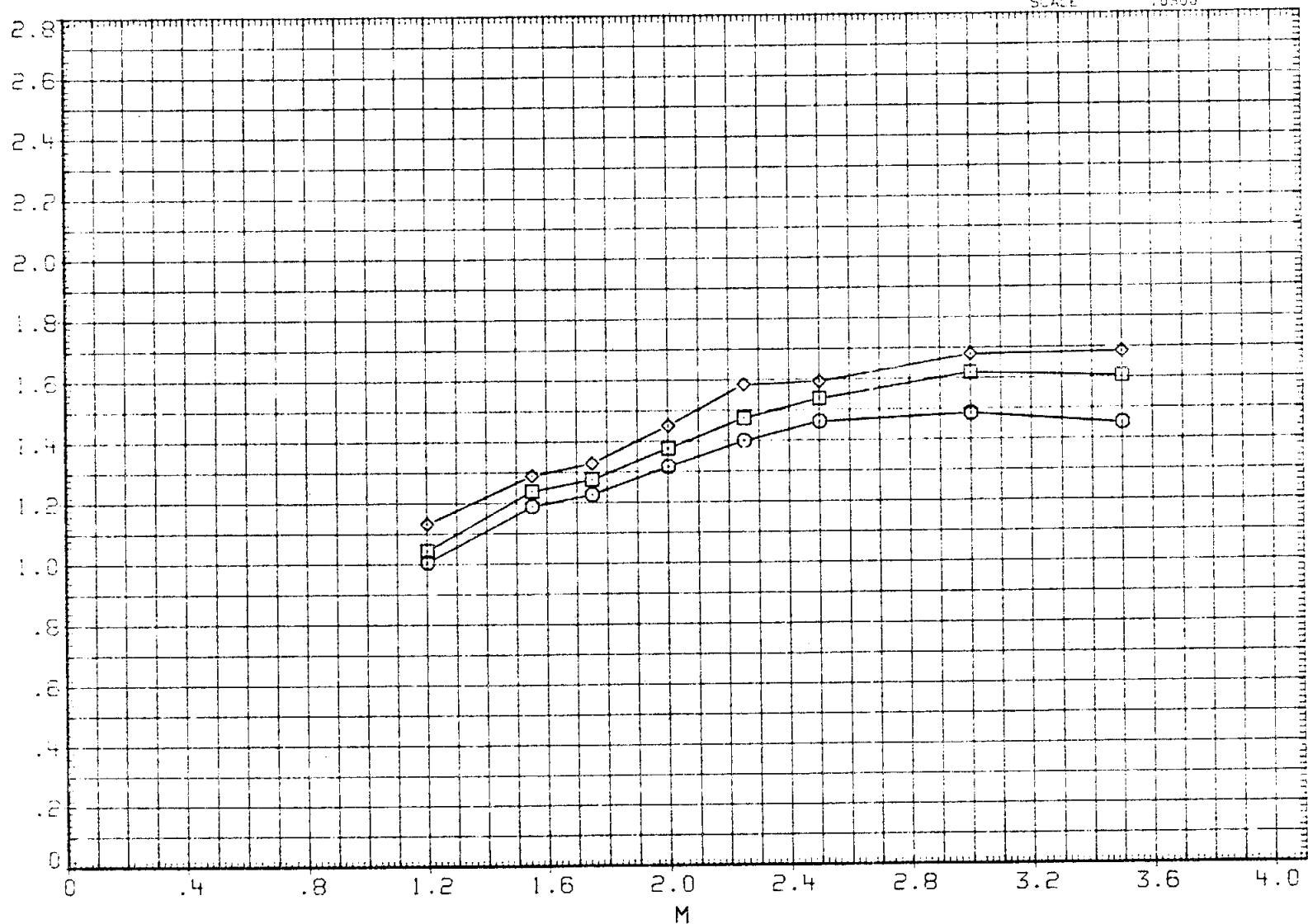


FIG. 14 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE



FE7X03  
 SYMBOL  
 O O O

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

PARAMETRIC VALUES			
ALPHA	BETA	ELEVON	
.000	-5.000	.000	
12.000	AILRON	BDFLAP	-7.170
24.000			

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

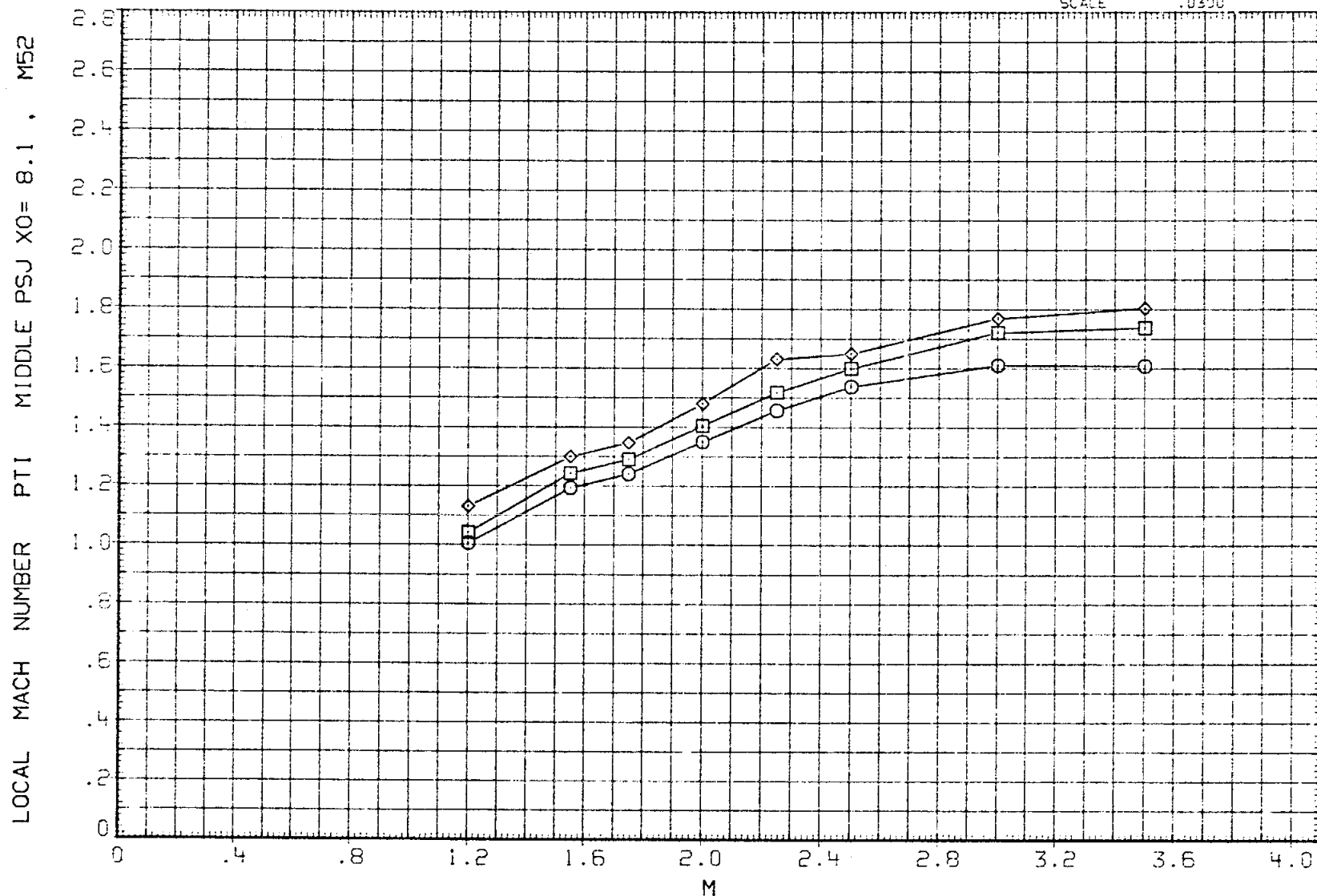


FIG. 14 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

SYMBOL

ALPHA

PARAMETRIC VALUES

.000 BETA -5.000 ELEVON .000  
12.000 AIRLON .000 BDFLAP -7.170  
24.000

REFERENCE INFORMATION

SPEF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .9300

LOCAL MACH NUMBER PTI OUTBOARD PSJ XO= 8.1 , M62

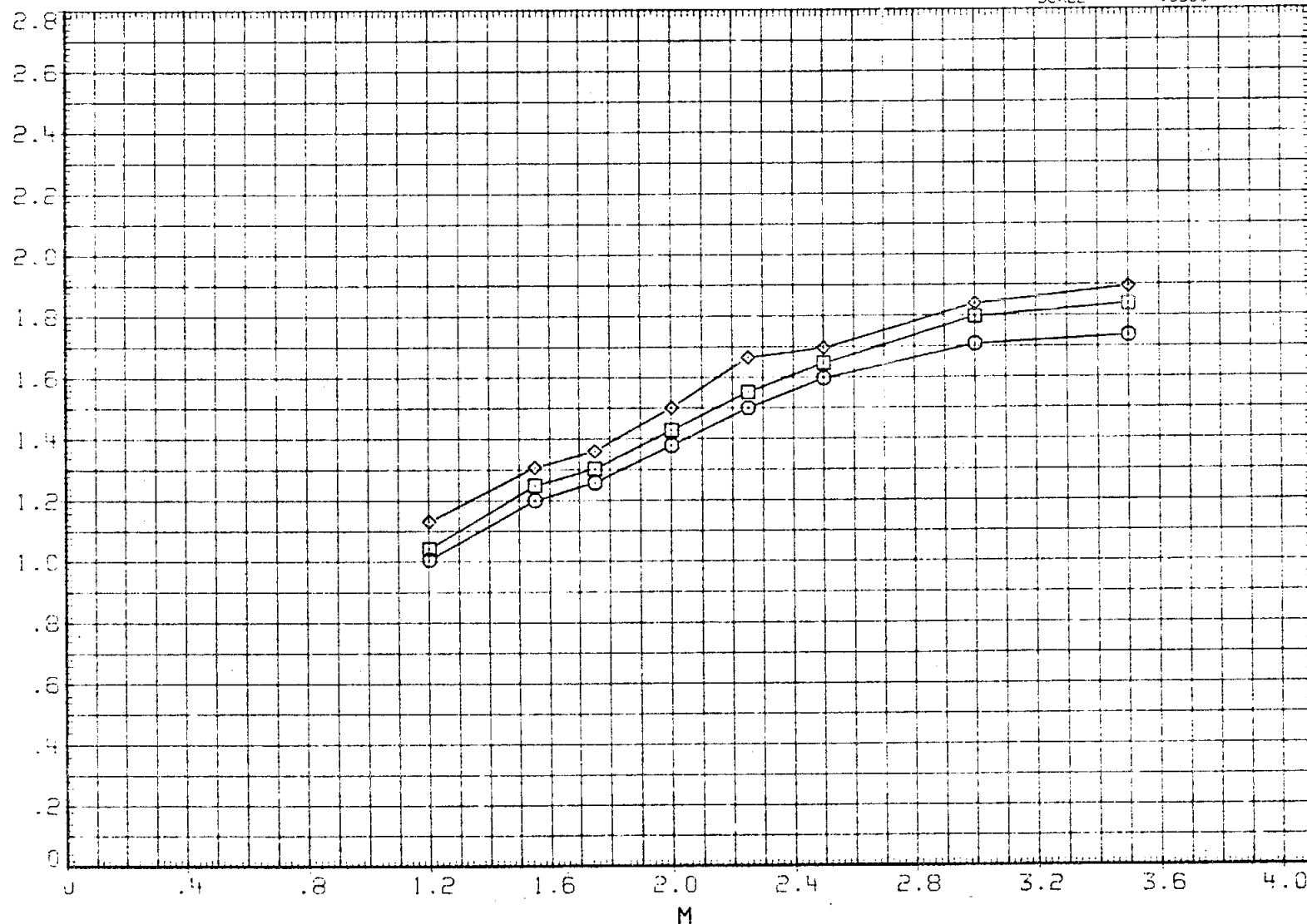


FIG. 14 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

FETX03  
SYMBOL

CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES

ALPHA	PARAMETRIC VALUES		
0.000	BETA	-5.000	ELEVON
12.000	AILRON	.000	BDCLAP
24.000			-7.170

REFERENCE INFORMATION

SREF	2690.0000	SO.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6600	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

LOCAL MACH NUMBER PT1 INBOARD PSJ XO=12.9 , M44

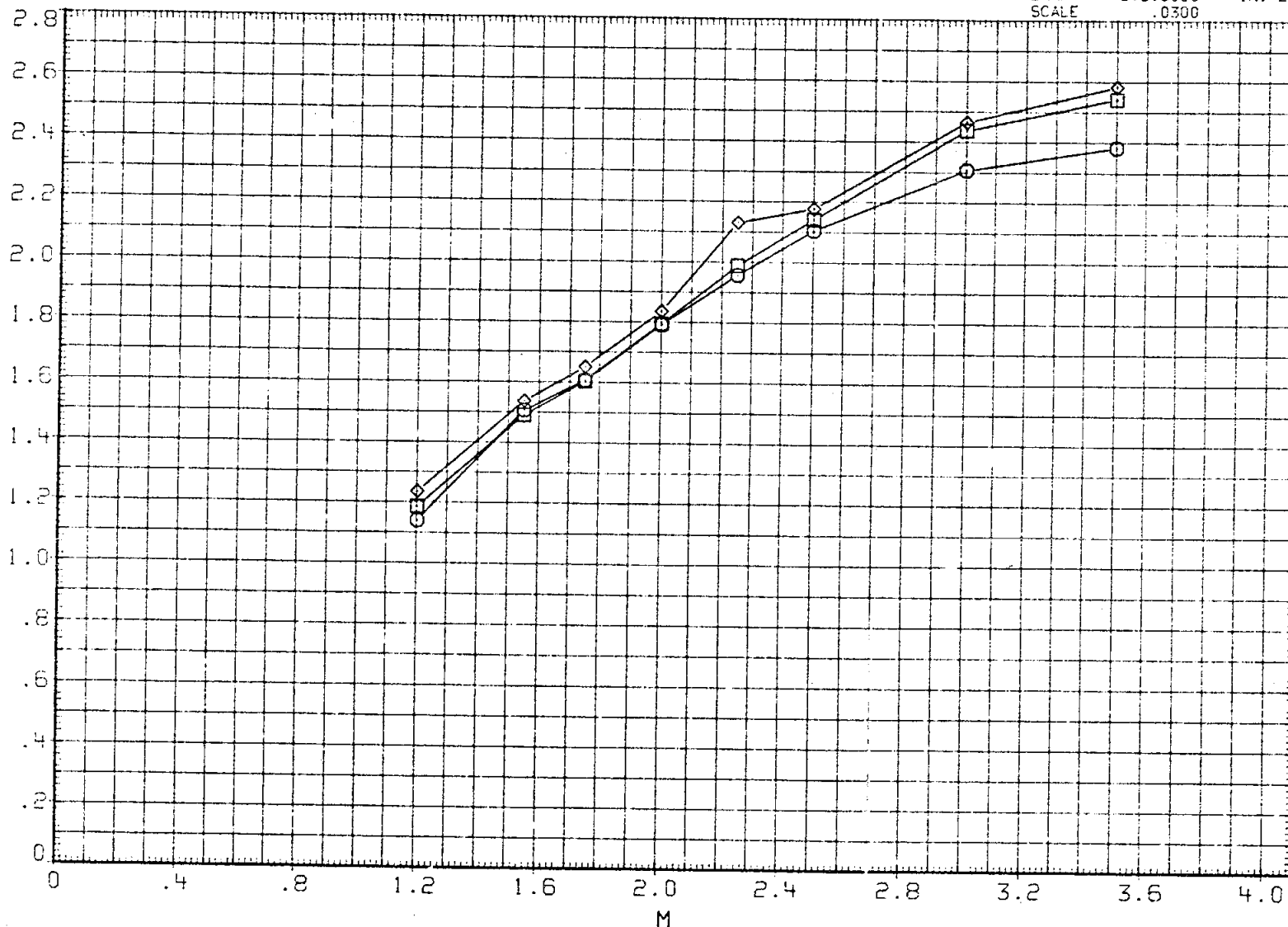


FIG. 14 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

FE7X03 CONFIGURATION ARC 11-97-87-094 OA161 ORBITER - RAKES  
 SYMBOL ALPHA BETA PARAMETRIC VALUES ELEVON .000  
 12.000 AILRON .000 BDFLAP -7.170  
 24.000

REFERENCE INFORMATION  
 SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6300 IN.  
 XMPP 1076.6800 IN. XO  
 YMP 10000 IN. YO  
 ZMP 375.0000 IN. ZO  
 SCALE .0300

LOCAL MACH NUMBER PT1 MIDDLE PSJ XO=12.9 , M54

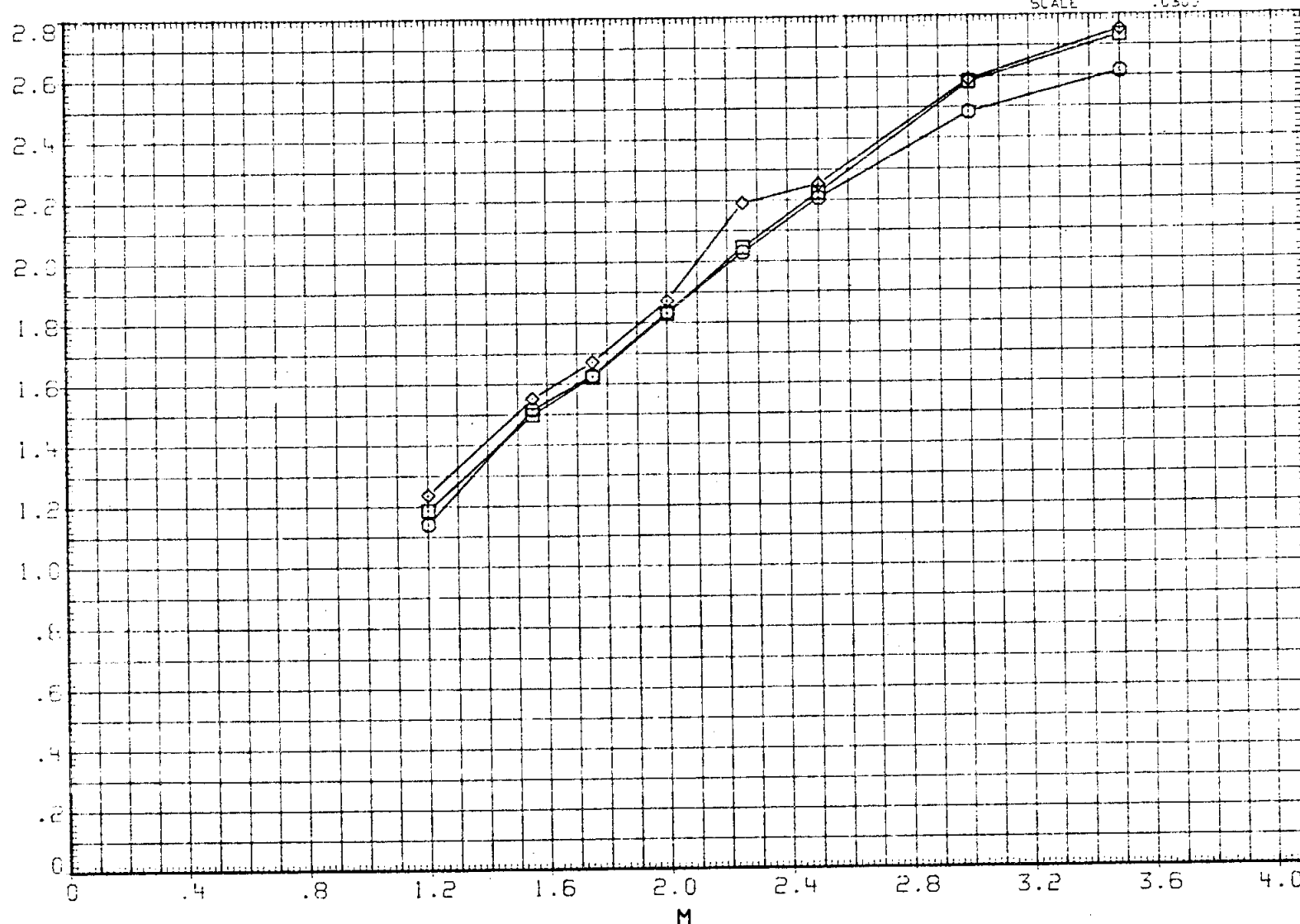


FIG. 14 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

FE7X03

SYMBOL

◇ □ ○

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

ALPHA

.000  
12.000  
24.000BETA  
AILRON

PARAMETRIC VALUES

-5.000  
.000ELEVON  
BDFLAP.000  
-7.170

REFERENCE INFORMATION

SREF	2593.0000	50.FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
XMRP	1076.6800	IN. X0
YMRP	.0000	IN. Y0
ZMRP	175.0000	IN. Z0
SCALE	.0300	

LOCAL MACH NUMBER PT1 OUTBOARD PSJ X0=12.9 , M64

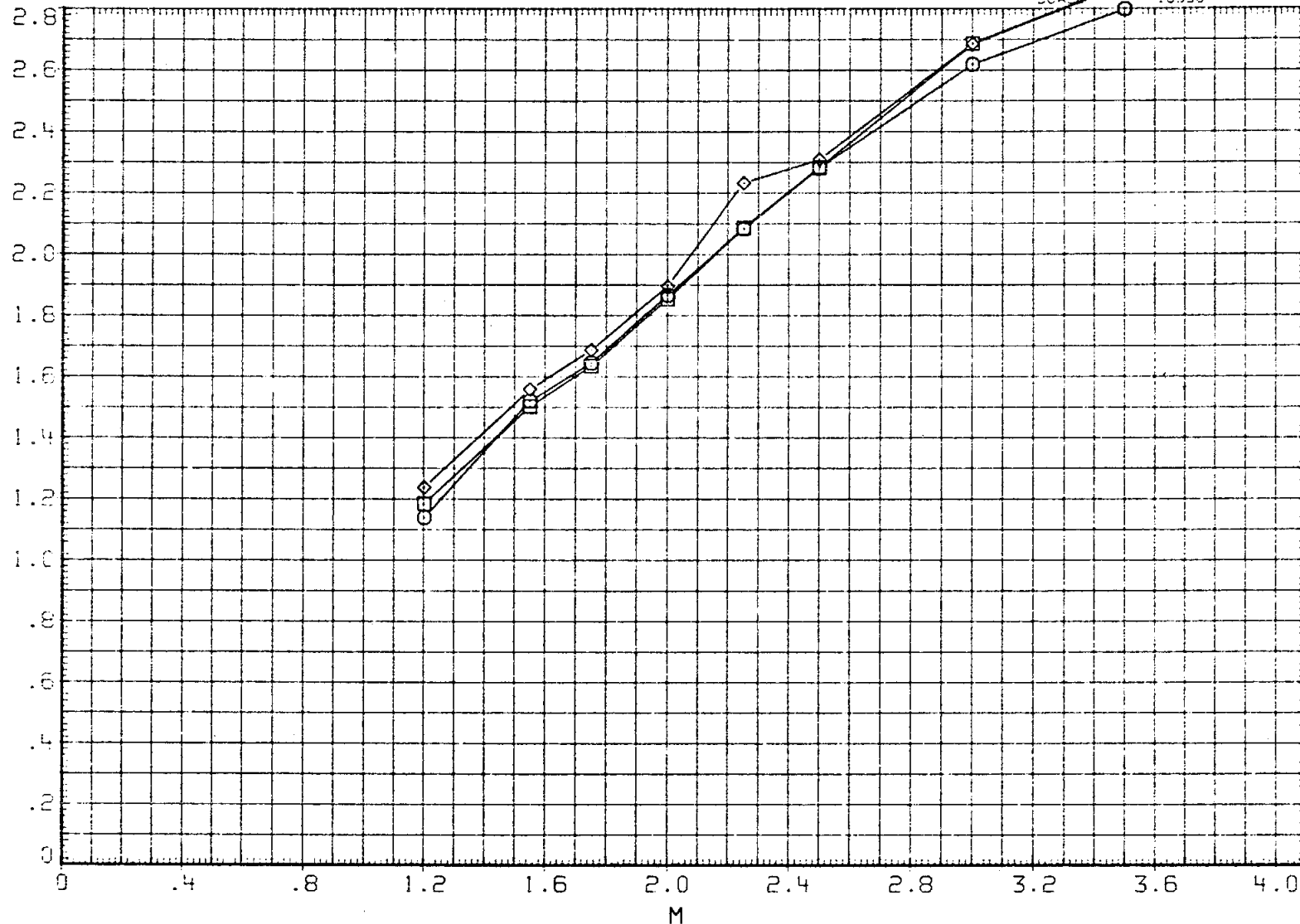


FIG. 14 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

FE7X05 CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES  
 SYMBOL ALPHA PARAMETRIC VALUES  
 .000 BETA .000 ELEVON .000  
 12.000 AILRON .000 BOFLAP -7.170  
 24.000

REFERENCE INFORMATION  
 SREF 2690.0000 SQ. FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

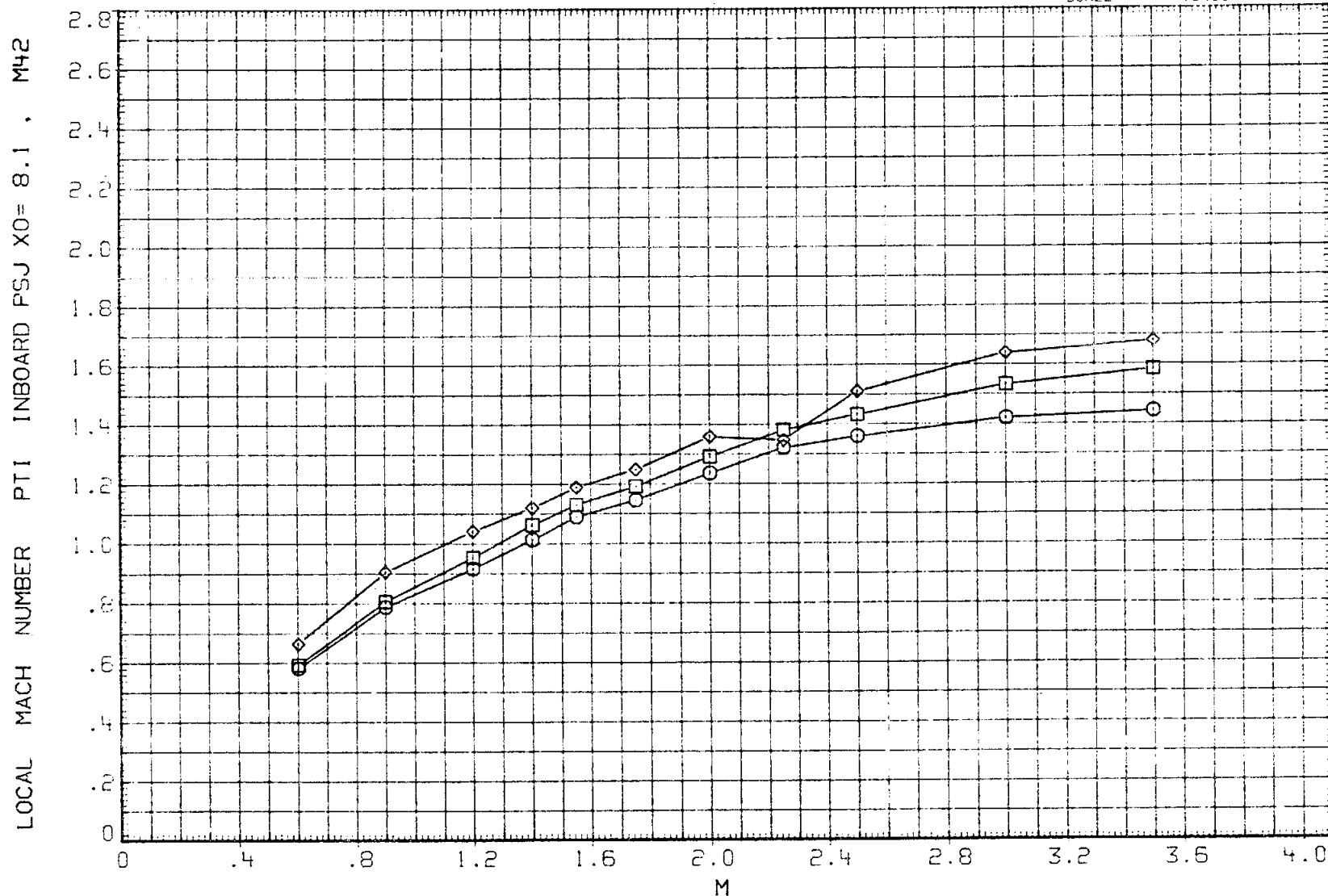


FIG. 14 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

FE7X05  
SYMBOL

◇○○

CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES

ALPHA .000 BETA .000 ELEVON .000  
12.000 AILRON .000 BOFLAP -7.170  
24.000

REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMPP 1076.6800 IN. XO  
YMPP .0000 IN. YO  
ZMPP 375.0000 IN. ZO  
SCALE .6300

LOCAL MACH NUMBER PT1 MIDDLE PSJ XO= 8.1 , M52

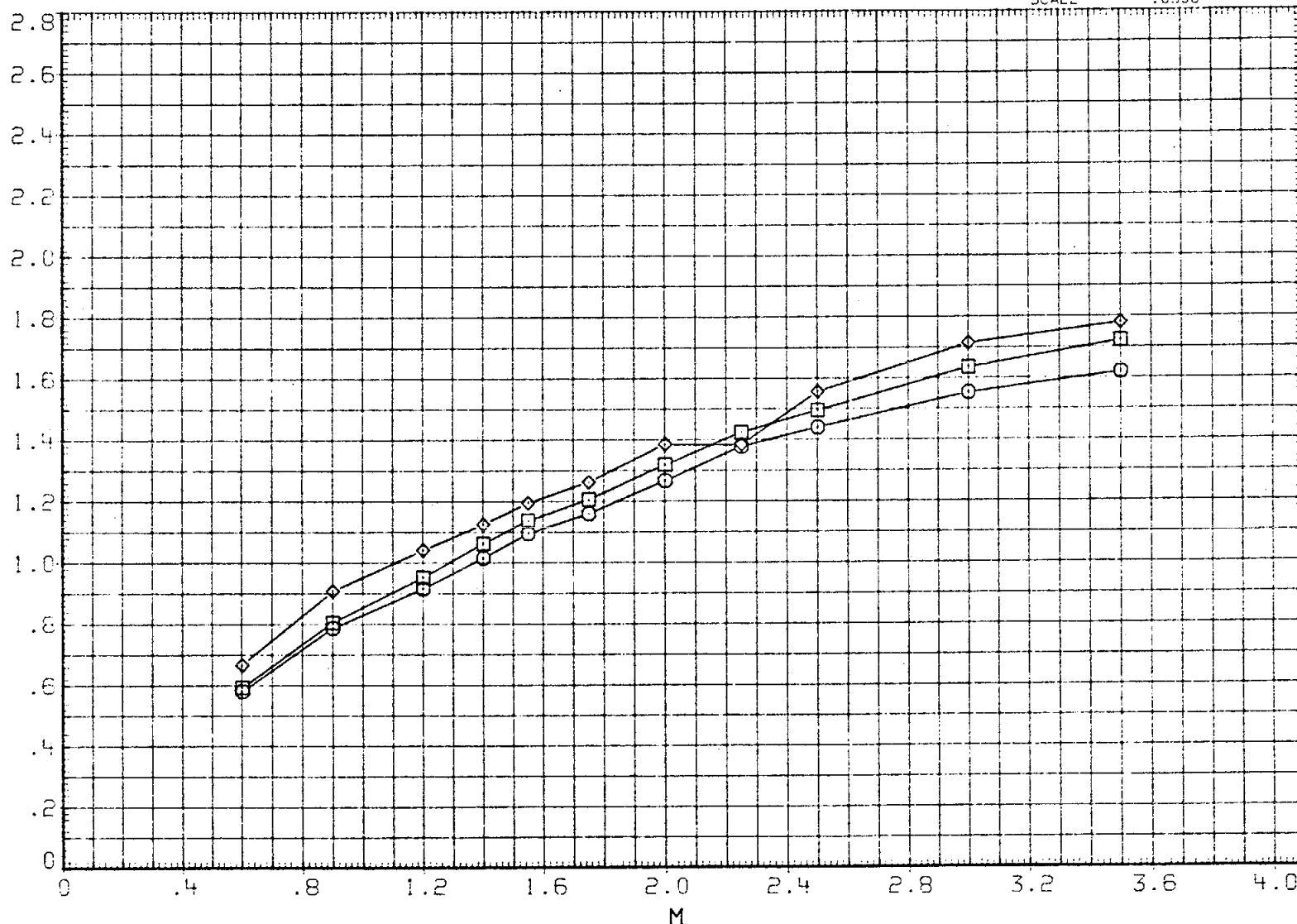


FIG. 14 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

FLUX SYMBOL  
 0000  
 0000  
 0000

CONFIGURATION ARC 11-97-E7-894 DATE: ORBITER A RAKES

PARAMETRIC VALUES  
 ALPHA .000 BETA .000 ELEVON .000  
 12.000 AILRON .000 BDFLAP -7.178  
 24.000

REFERENCE INFORMATION  
 SREF 2690.0000 50.FT.  
 LREF 474.6000 IN.  
 SREF 936.6000 IN.  
 YMRP 1076.6000 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE .0000

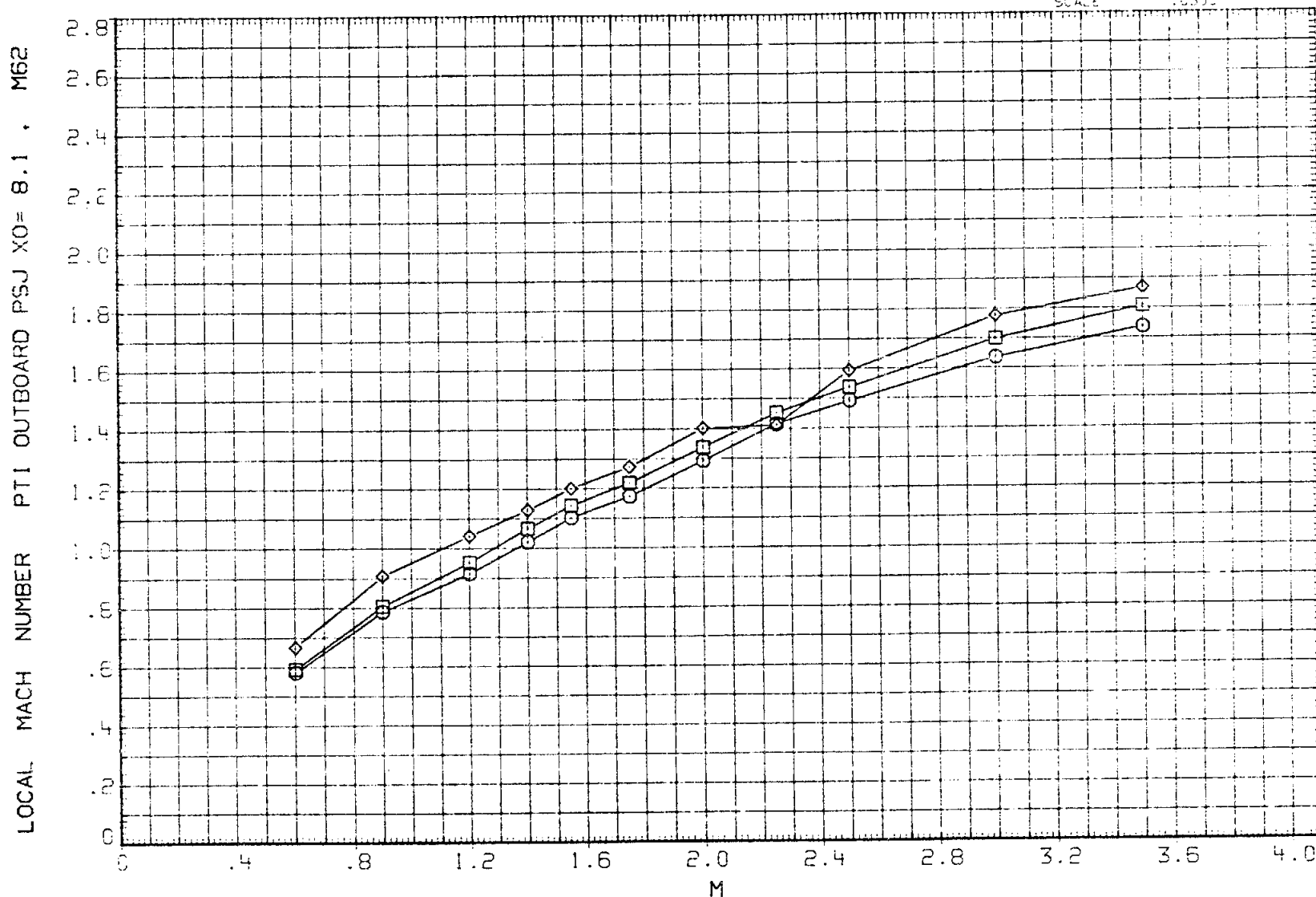


FIG. 14 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE



FE7X05

SYMBOL

◇ □ ○

CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES

PARAMETRIC VALUES

ALPHA	BETA	ELEVON	
.000	.000	.000	
12.000	AILRON	BOFLAP	-7.170
24.000			

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRF	1076.6800	IN. XO
YMRF	.0000	IN. YO
ZMRF	375.0000	IN. ZO
SCALE	.0300	

LOCAL MACH NUMBER PT1 INBOARD PSJ XO=12.9 , M44

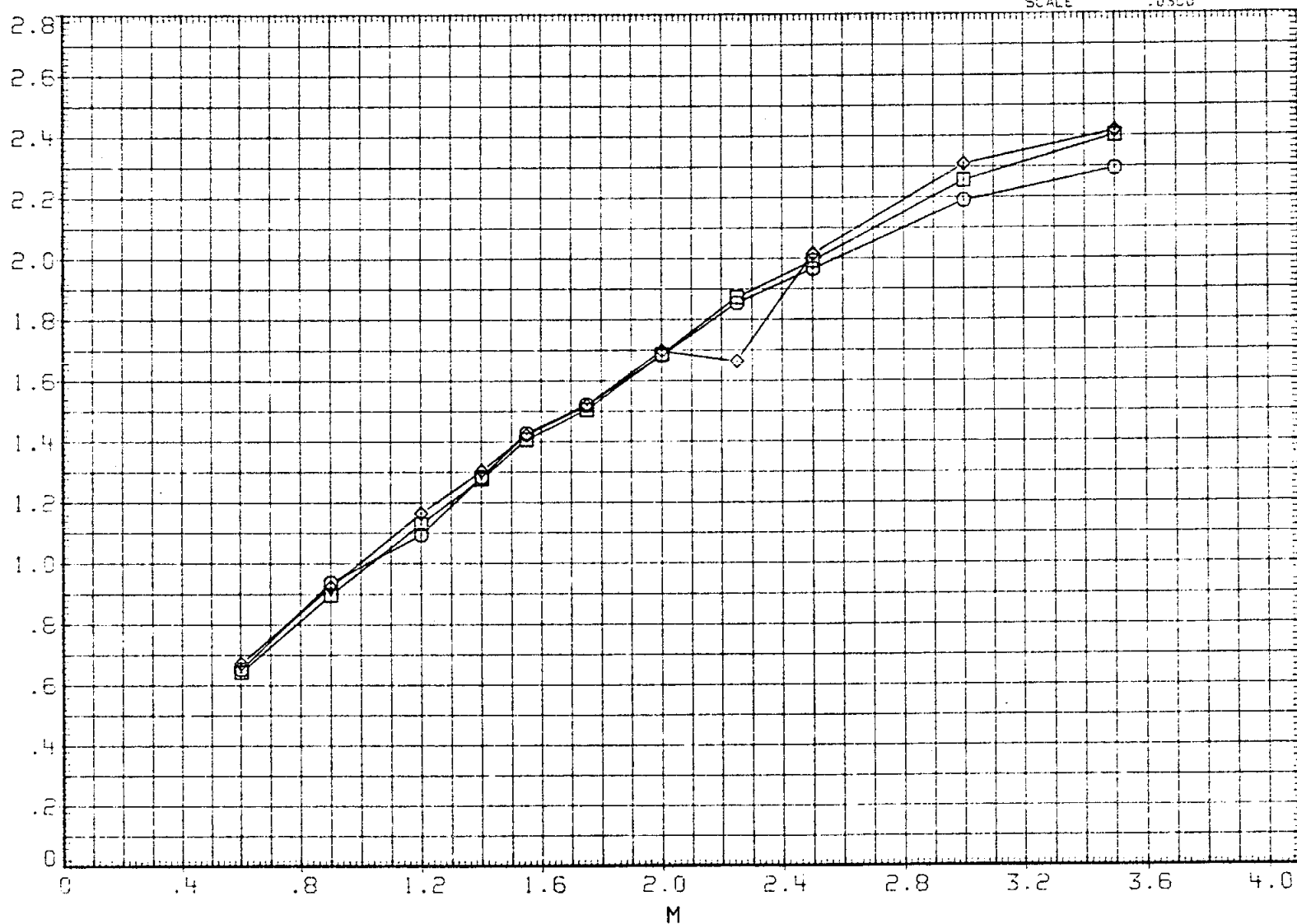


FIG. 14 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

FE7X05  
SYMBOL

CONFIGURATION ARC 11-97-87-094 OAT161 ORBITER - RAKES  
PARAMETRIC VALUES  
ALPHA .000 BETA .000 ELEVON .000  
12.000 AIRRON .000 BOFLAP -7.170  
24.000

REFERENCE INFORMATION  
SREF 2630.0000 90.FT.  
LREF 474.0000 1K.  
BREF 936.6800 IN.  
XREF 1076.6800 IN. XO  
YREF .0000 IN. YO  
ZREF 375.0000 IN. ZO  
SCALE .0300

LOCAL MACH NUMBER PT1 MIDDLE PSU XO=12.9 , M54

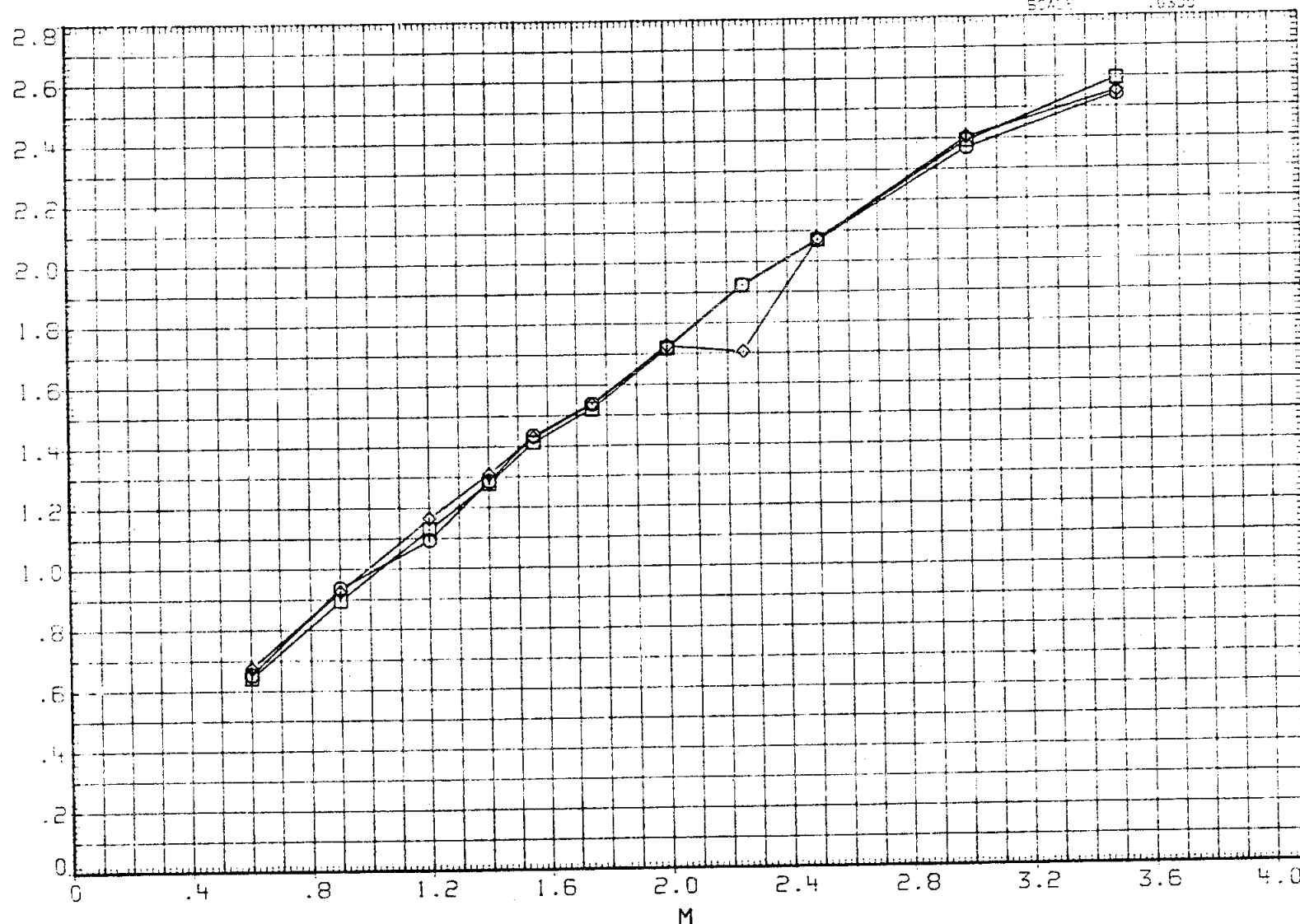


FIG. 14 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

FE7X05 CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

SYMBOL

PARAMETRIC VALUES	
ALPHA	BETA
.000	.000
12.000	ELEVON
24.000	.000
	BDFLAP
	-7.170

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

LOCAL MACH NUMBER PT1 OUTBOARD PSJ XO=12.9 , M64

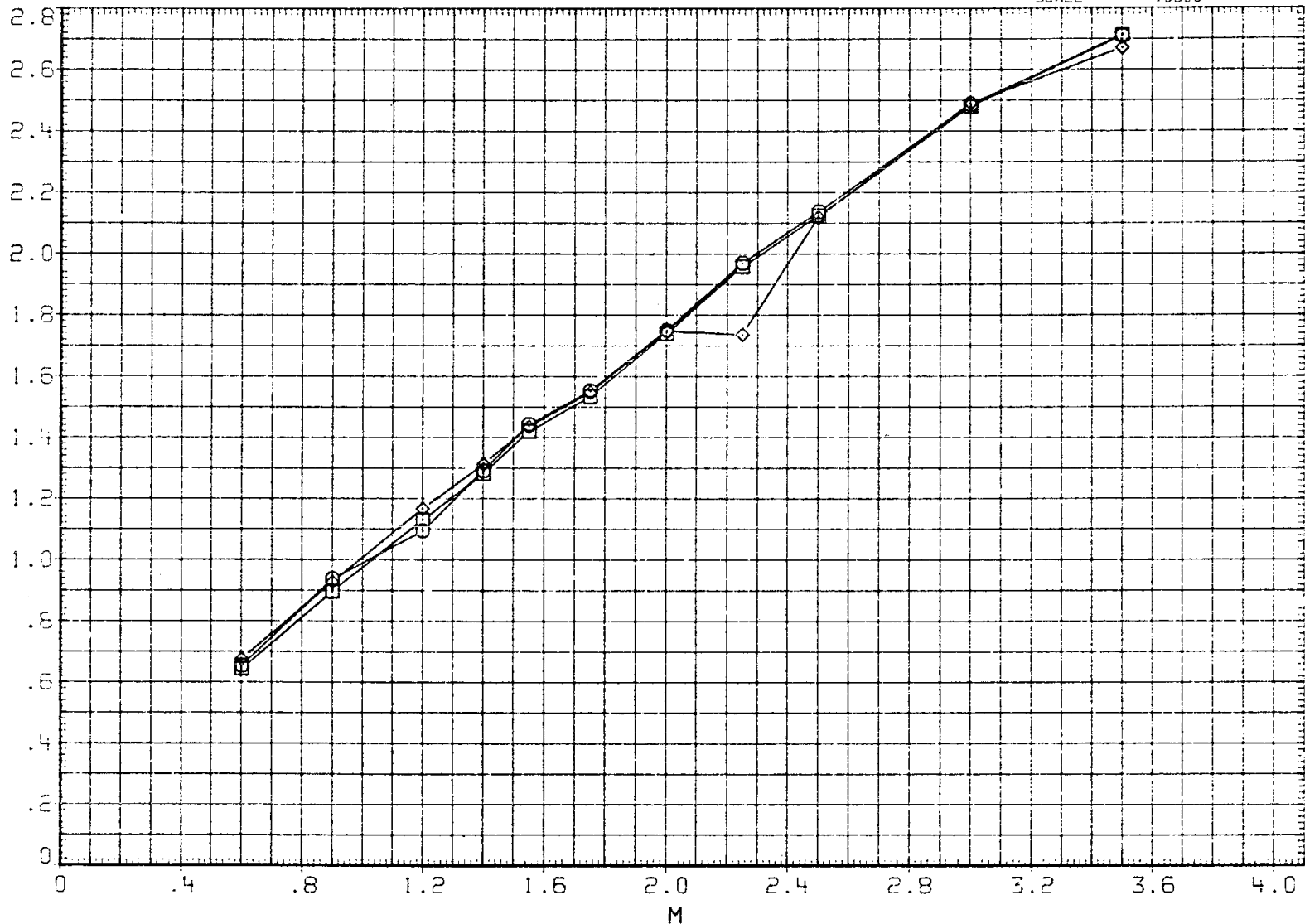


FIG. 14 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

FETX02 CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES  
 SYMBOL ALPHA PARAMETRIC VALUES  
 0000 BETA 5.000 ELEVON .000  
 12.000 AILRON .000 BOFLAP -7.170  
 24.000

REFERENCE INFORMATION  
 SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

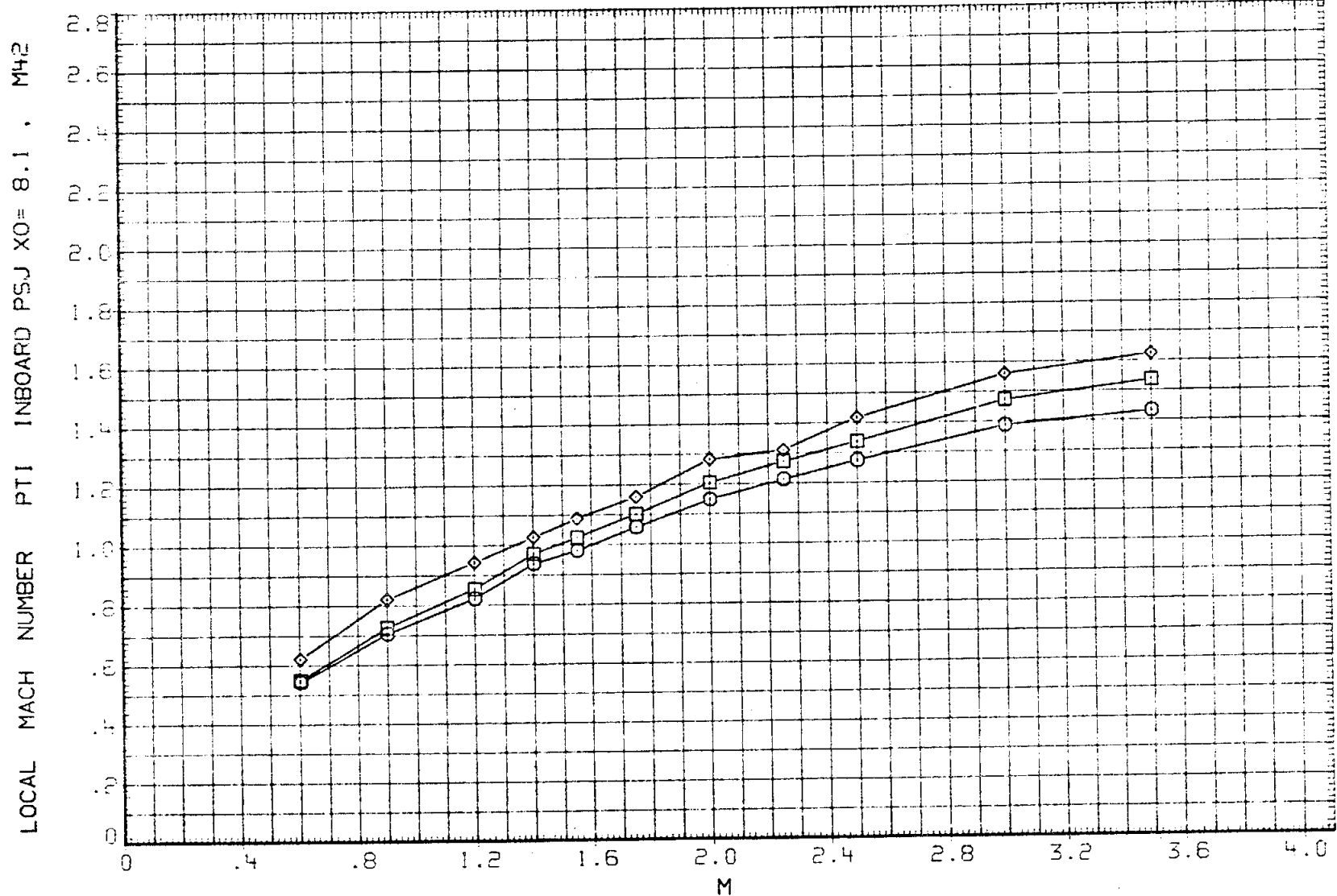


FIG. 14 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

FE7X07 CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES  
 SYMBOL ALPHA PARAMETRIC VALUES  
 .000 BETA 5.000 ELEVON .000  
 12.000 AILRON .000 BDFLAP -7.170  
 24.000

REFERENCE INFORMATION  
 SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMPP 1076.6800 IN. XO  
 YMP 0.0000 IN. YO  
 ZMP 375.0000 IN. ZO  
 SCALE .0300

LOCAL MACH NUMBER PT1 MIDDLE PSJ XO= 8.1 , M52

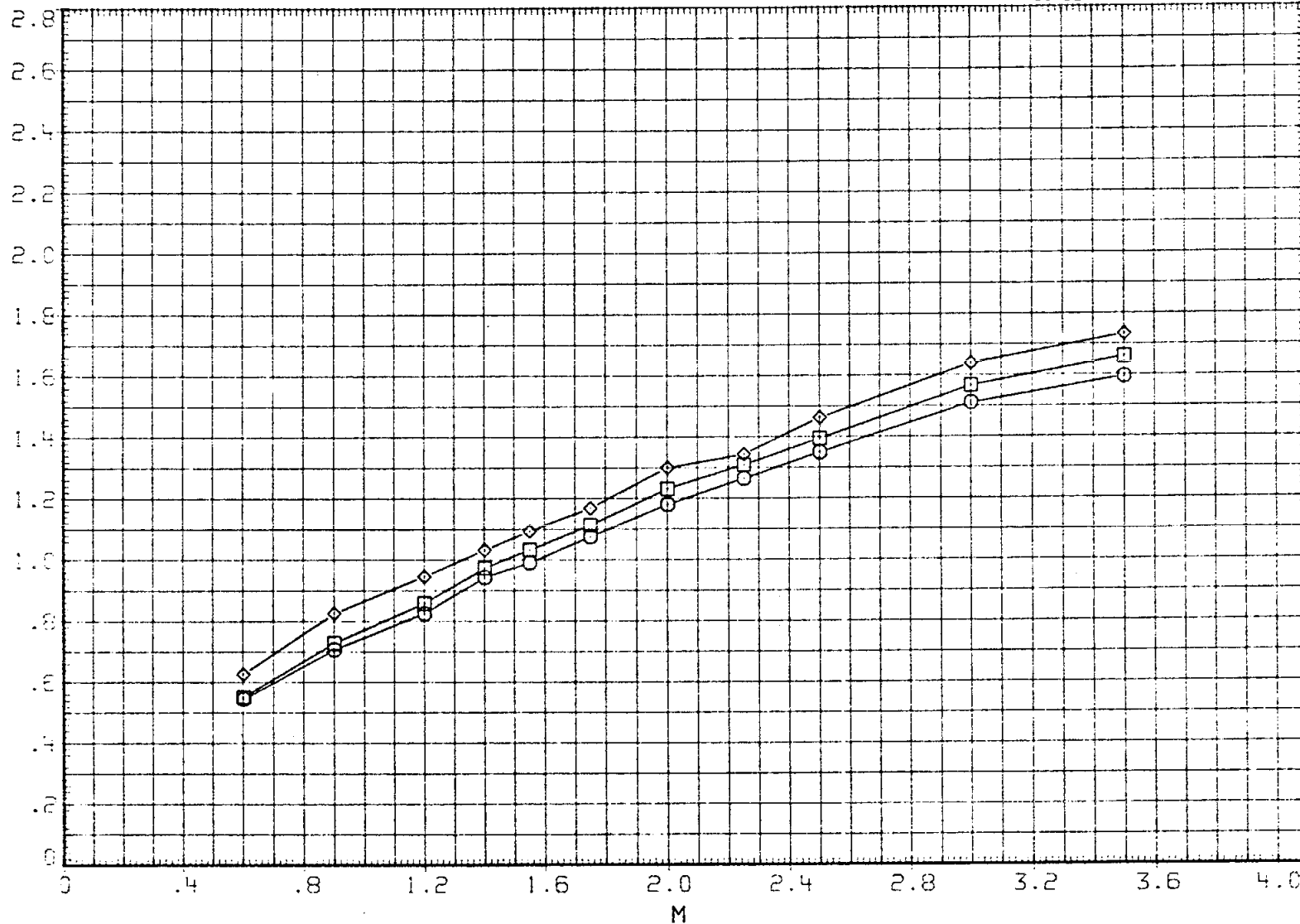


FIG. 14 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

FEDX97 CONFIGURATION ARC 11-97-87-094 0A161 ORBITER \* RAKES  
 SYMBOL ALPHA PARAMETRIC VALUES  
 .000 BETA 5.000 ELEVON .000  
 12.050 AILERON .000 BOFLAP -7.170  
 24.000

REFERENCE INFORMATION  
 SPREF 2690.0000 SQ.FT.  
 LPREF 474.8000 IN.  
 BPREF 935.6800 IN.  
 XMREF 1076.6800 IN. XO  
 YMREF .0000 IN. YO  
 ZMREF 375.0000 IN. ZO  
 SCALE .0300

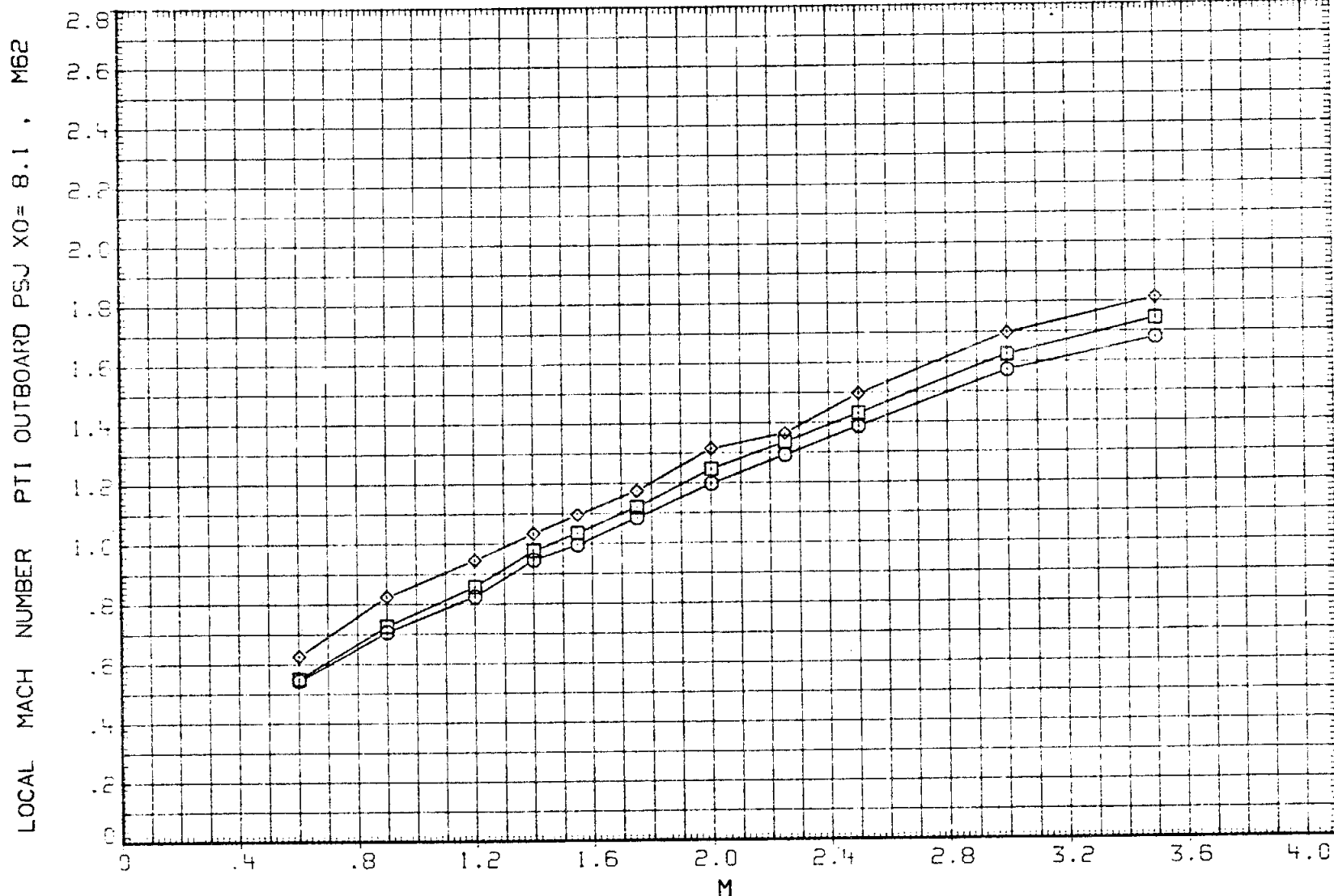


FIG. 14 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

FE7X07  
 SYM021  
 6770

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES  
 ALPHA .000 BETA 5.000 ELEVON .000  
 12.000 AILRON .000 BDFLAP -7.170  
 24 .000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.9500	

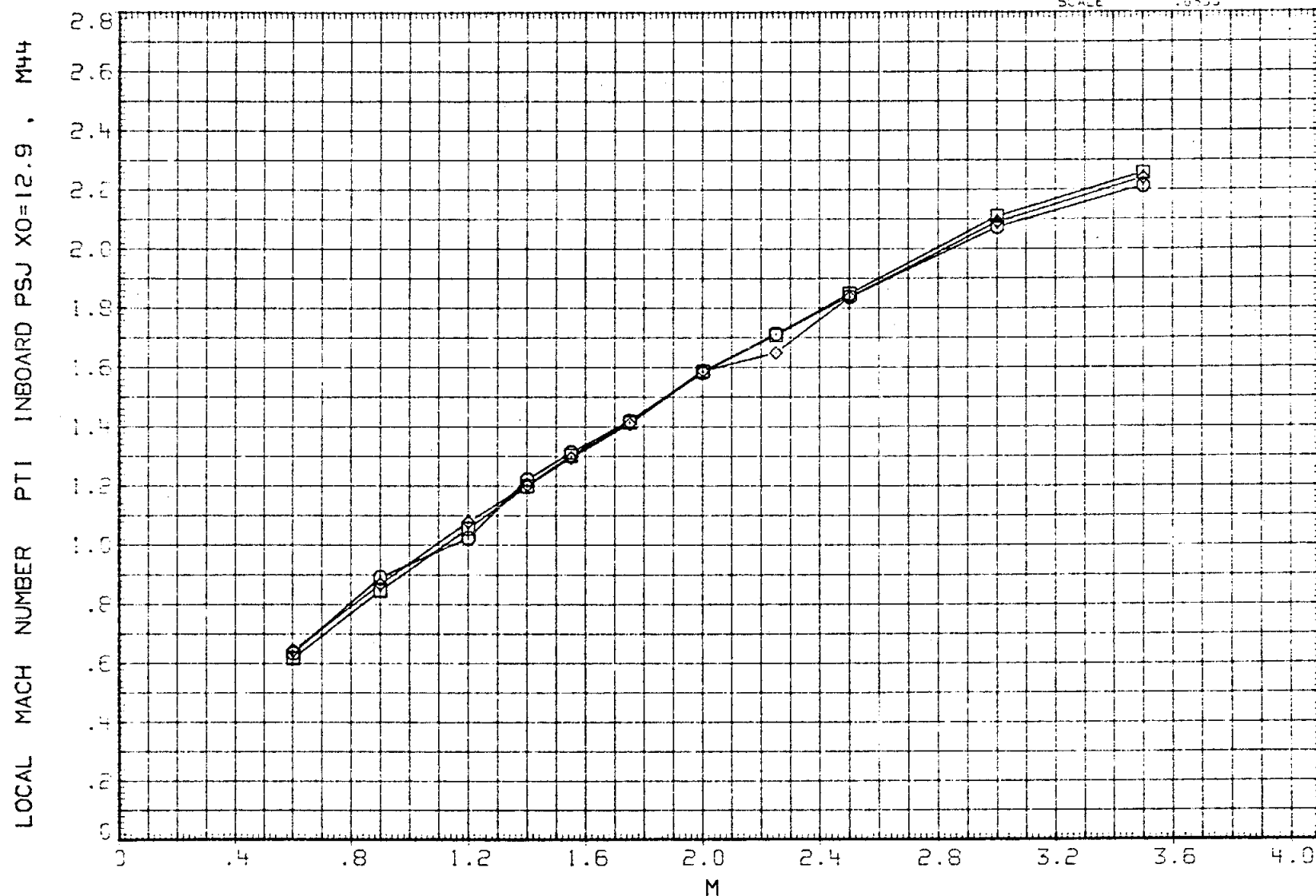


FIG. 14 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

FETX01 CONFIGURATION ARC 11-97-87-094 GA161 ORBITER - RAKES  
 SY992L ALPHA PARAMETRIC VALUES  
 01100 BETA 5.000 ELEVON .000  
 12.000 AILRON .000 BOFLAP -7.170  
 21.000

REFERENCE INFORMATION  
 SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMSP 1076.6800 IN. XO  
 YMSP .0000 IN. YO  
 ZMSP 375.0000 IN. ZO  
 SCALE .0300

LOCAL MACH NUMBER PT1 MIDDLE PSJ XO=12.9 , M54

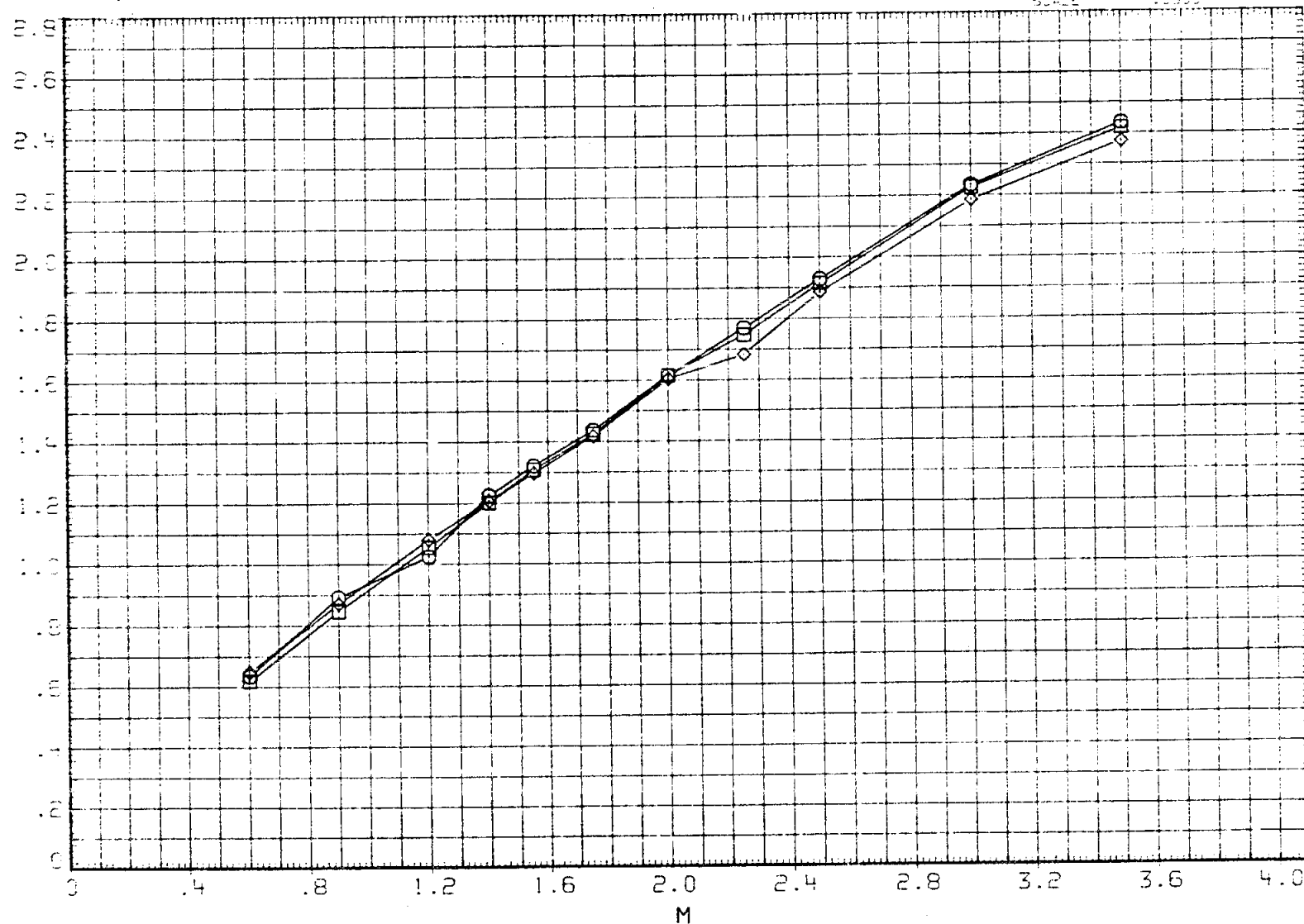


FIG. 14 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE



FETX07 CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL ALPHA PARAMETRIC VALUES  
 O 1.000 BETA 5.000 ELEVON .000  
 12.000 AILRON .000 BOFLAP -7.170  
 24.000

# REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6600 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE .0300

LOCAL MACH NUMBER PT1 OUTBOARD PSJ X0=12.9 , M64

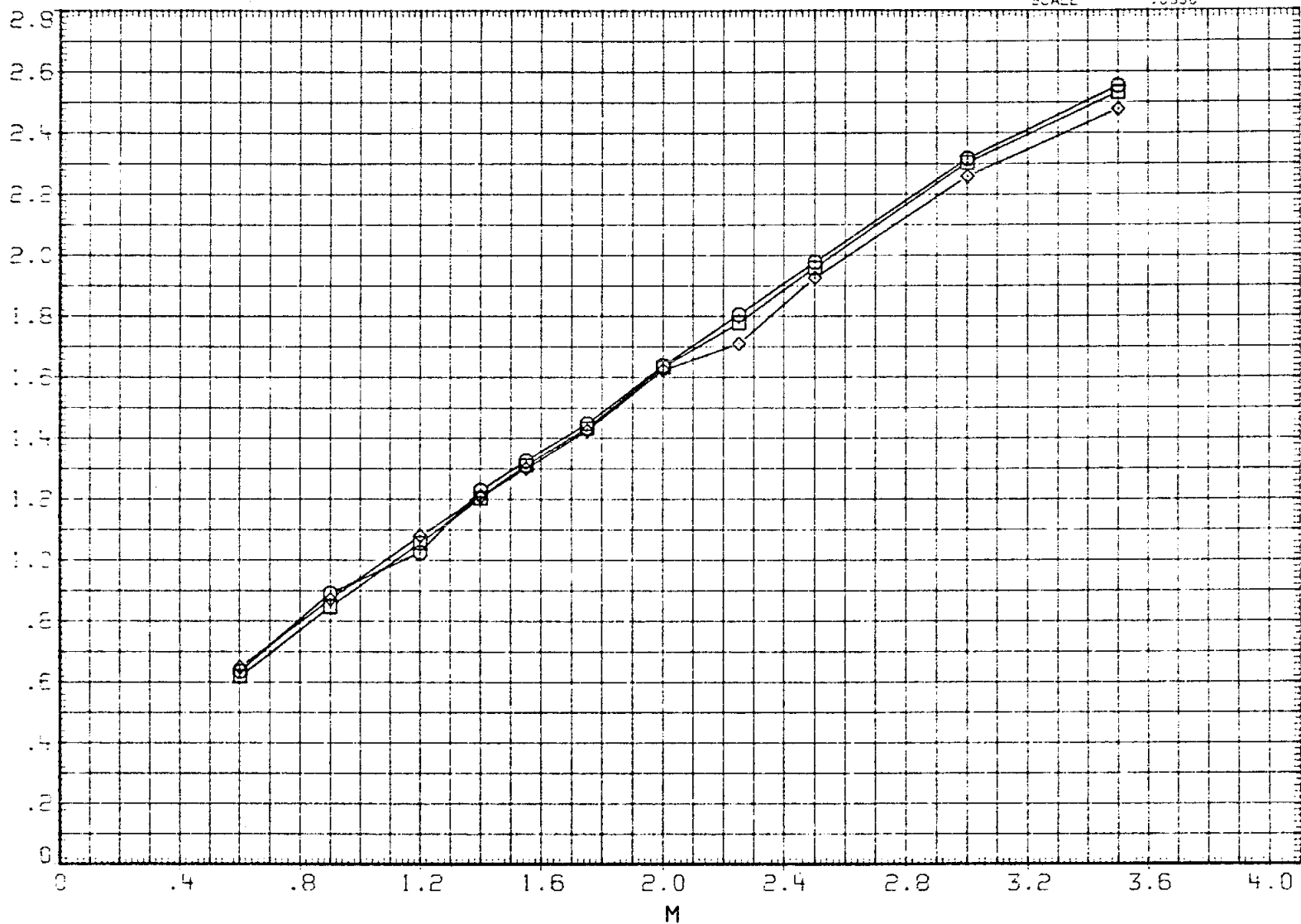


FIG. 14 EFFECT OF ALPHA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

117803 CONFIGURATION ARC 11-87-87-094 04161 ORBITER \* RAKES  
 SYMBOL ALPHA PARAMETRIC VALUES  
 .000 BETA -5.000 ELEVON .000  
 6.000 AIRRON .000 BOFLAP -7.170  
 12.000  
 18.000  
 24.000

REFERENCE INFORMATION  
 SREF 2690.0000 SQ. FT.  
 LPEL 474.8000 IN.  
 BREF 935.6800 IN.  
 XMPP 1075.6800 IN. XO  
 YMPP 1000.0000 IN. YO  
 ZMPP 375.0000 IN. ZO  
 SCALE .0500

COMPRESSIBLE Q RATIO ( PTI - PSJ ) / QC , Q42/QC

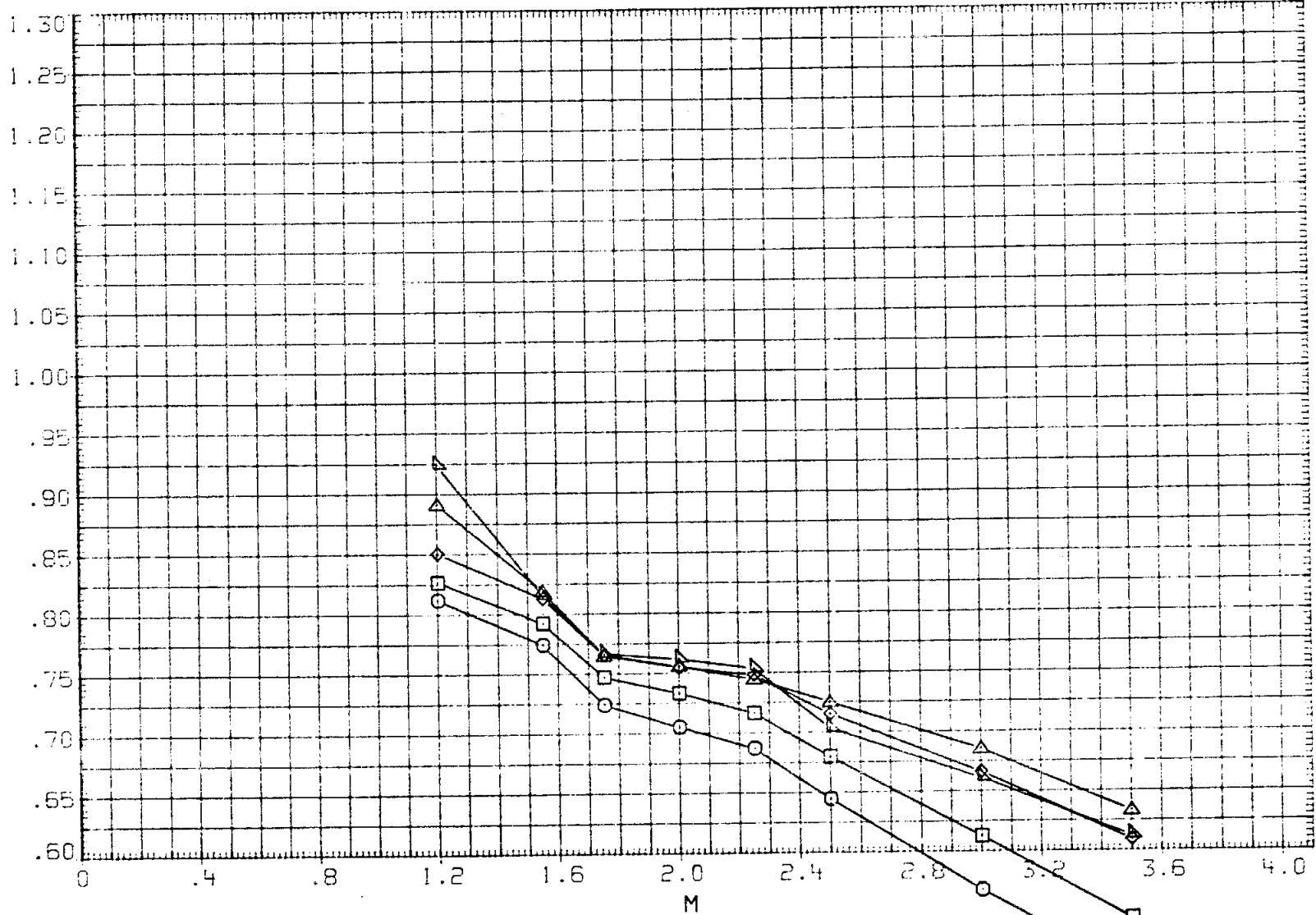


FIG. 15 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE  
 PAGE 300

FE7B03 CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES  
 SYMBOL ALPHA PARAMETRIC VALUES  
 0.000 BETA -5.000 ELEVON .000  
 6.000 AILRON .000 BOFLAP -7.170  
 12.000  
 18.000  
 24.000

REFERENCE INFORMATION  
 SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

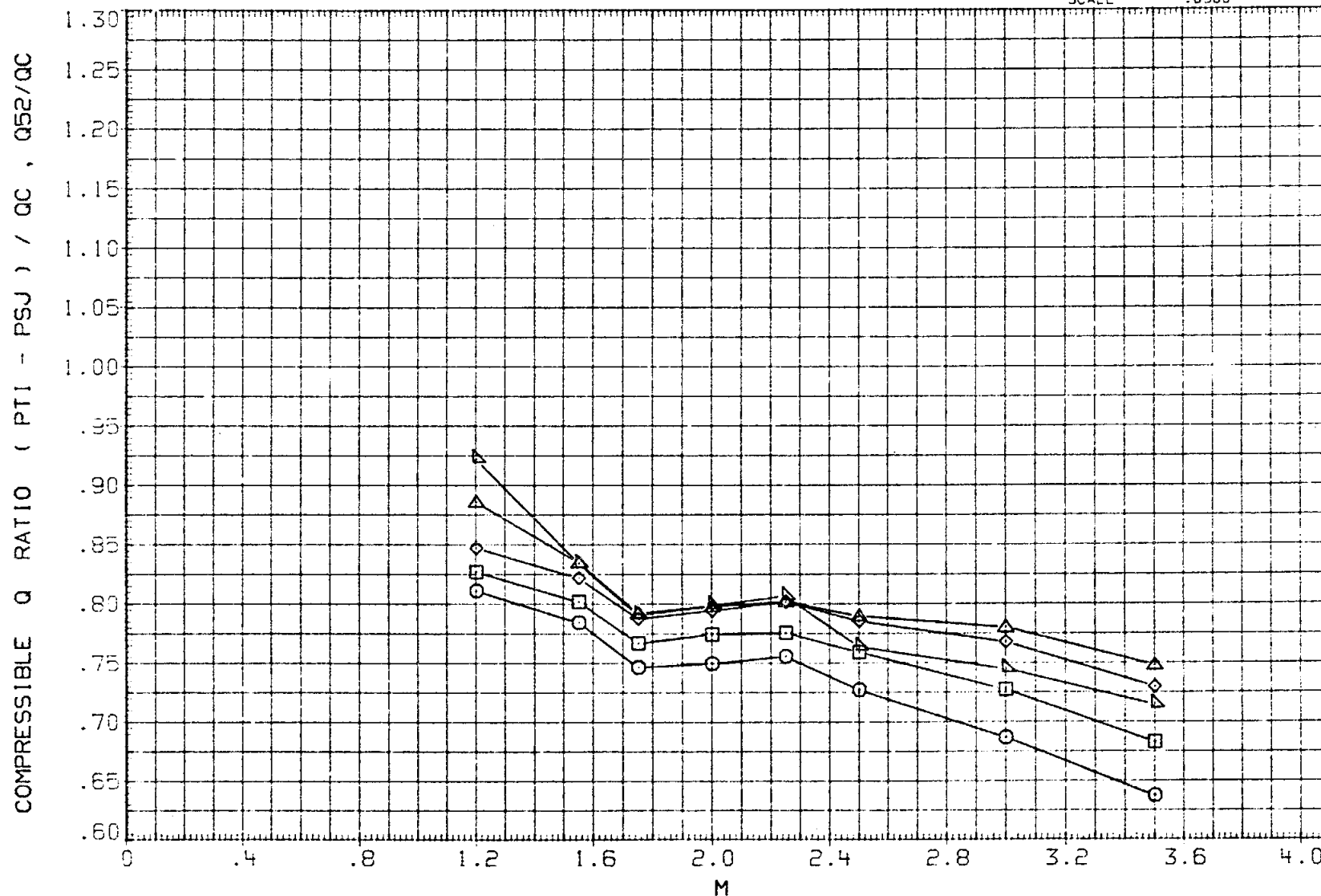


FIG. 15 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1/QC RIGHT RAKE

FE7802 CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES  
 SYNEOL ALPHA PARAMETRIC VALUES  
 .000 BETA -5.000 ELEVON .000  
 6.000 AILRON .000 BOFLAP -7.170  
 12.000  
 18.000  
 24.000

REFERENCE INFORMATION  
 SREF 2690.0000 SQ. FT.  
 LREF 474.8000 IN.  
 BREF 938.8000 IN.  
 XMRP 1076.6800 IN. XC  
 YMRP .0000 IN. YC  
 ZMRP 375.0000 IN. ZC  
 SCALE .0500

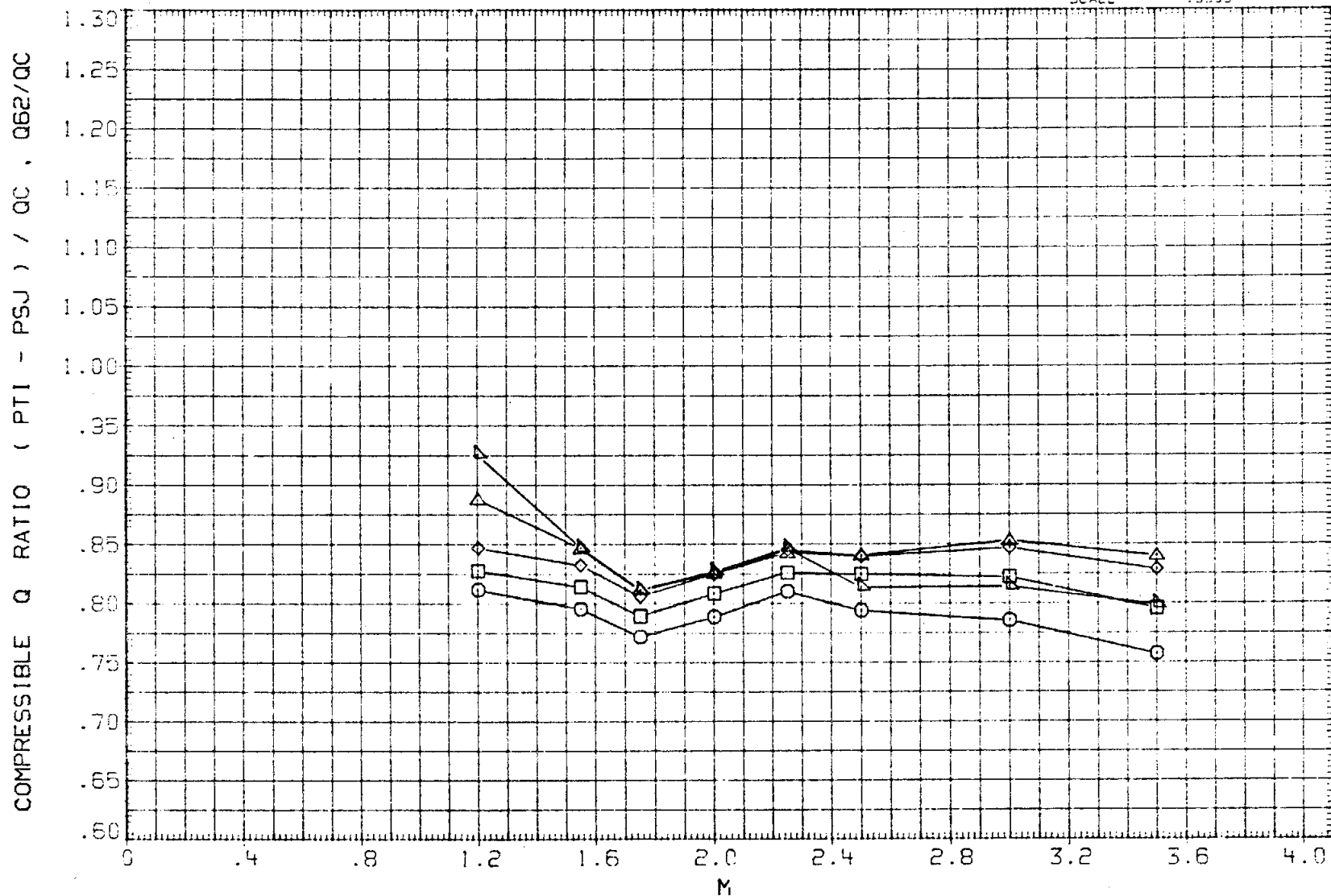


FIG. 15 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

FETBCS  
SYMBOL

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES				
ALPHA	PARAMETRIC VALUES			
.000	BETA	-5.000	ELEVON	.000
6.000	AILRON	.000	BDFLAP	-7.170
12.000				
18.000				
24.000				

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	936.6900	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

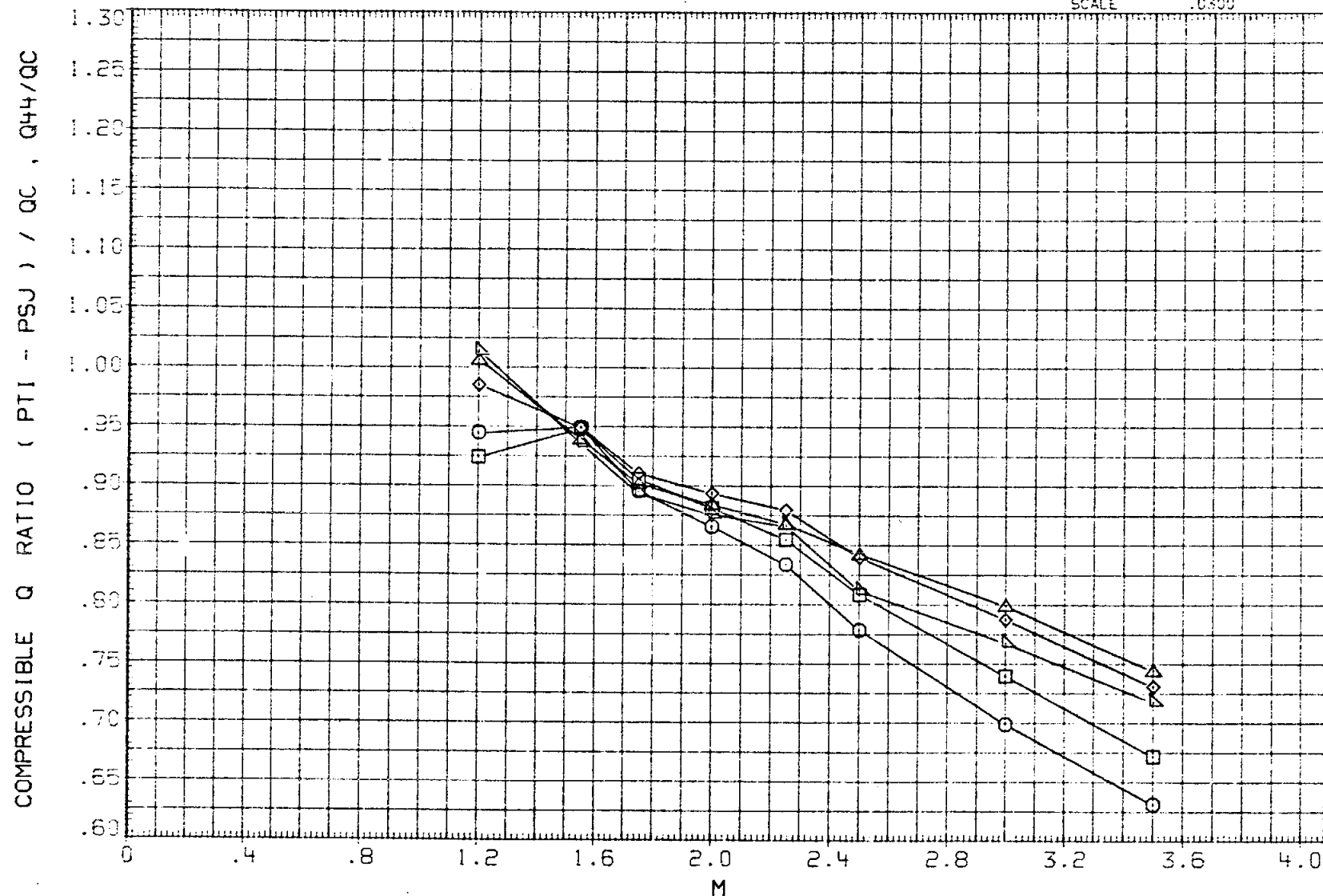


FIG. 15 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1/2/QC RIGHT RAKE

SYMBOL

PARAMETRIC VALUES

ALPHA	BETA	ELEVON	BDCLAP
.000	-5.000	.000	-7.170
6.000	.000		
12.000			
18.000			
24.000			

REFERENCE INFORMATION

SRFF	2690.0000	50. FT.
LRFF	474.8000	IN.
BRFF	936.6000	IN.
XRFF	1076.6000	IN. 10
YRFF	1.0000	IN. 70
ZRFF	375.0000	IN. 70
SCALE	.0300	

COMPRESSIBLE Q RATIO ( PTI - PSJ ) / QC , Q54/QC

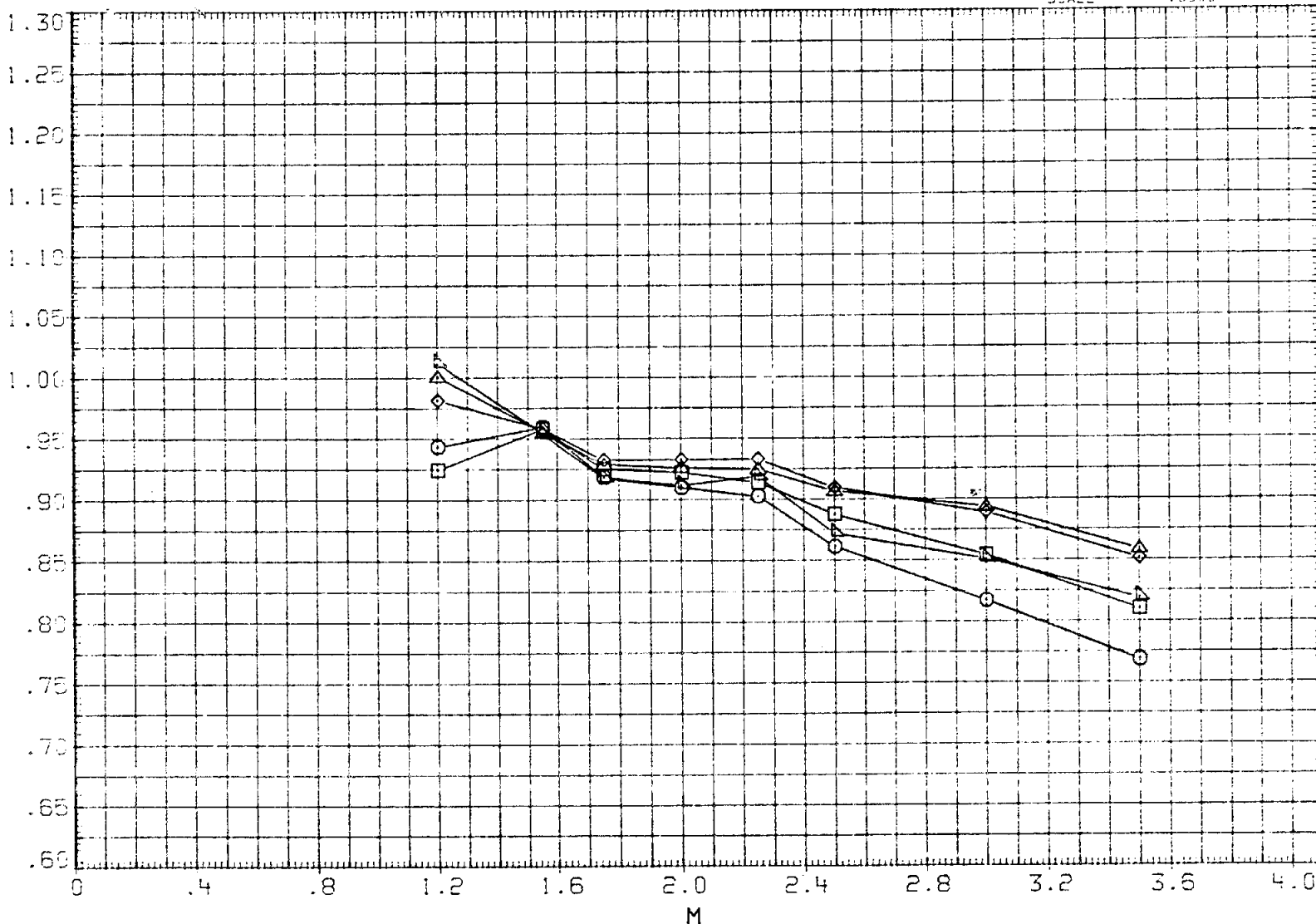


FIG. 15 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

FETB03 CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

SYMBOL

PARAMETRIC VALUES				
ALPHA	BETA	-5.000	ELEVON	.000
.000	AILRON	.000	BDFLAP	-7.170
6.000				
12.000				
18.000				
24.000				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

COMPRESSIBLE Q RATIO ( PT1 - PSJ ) / QC , Q64/QC

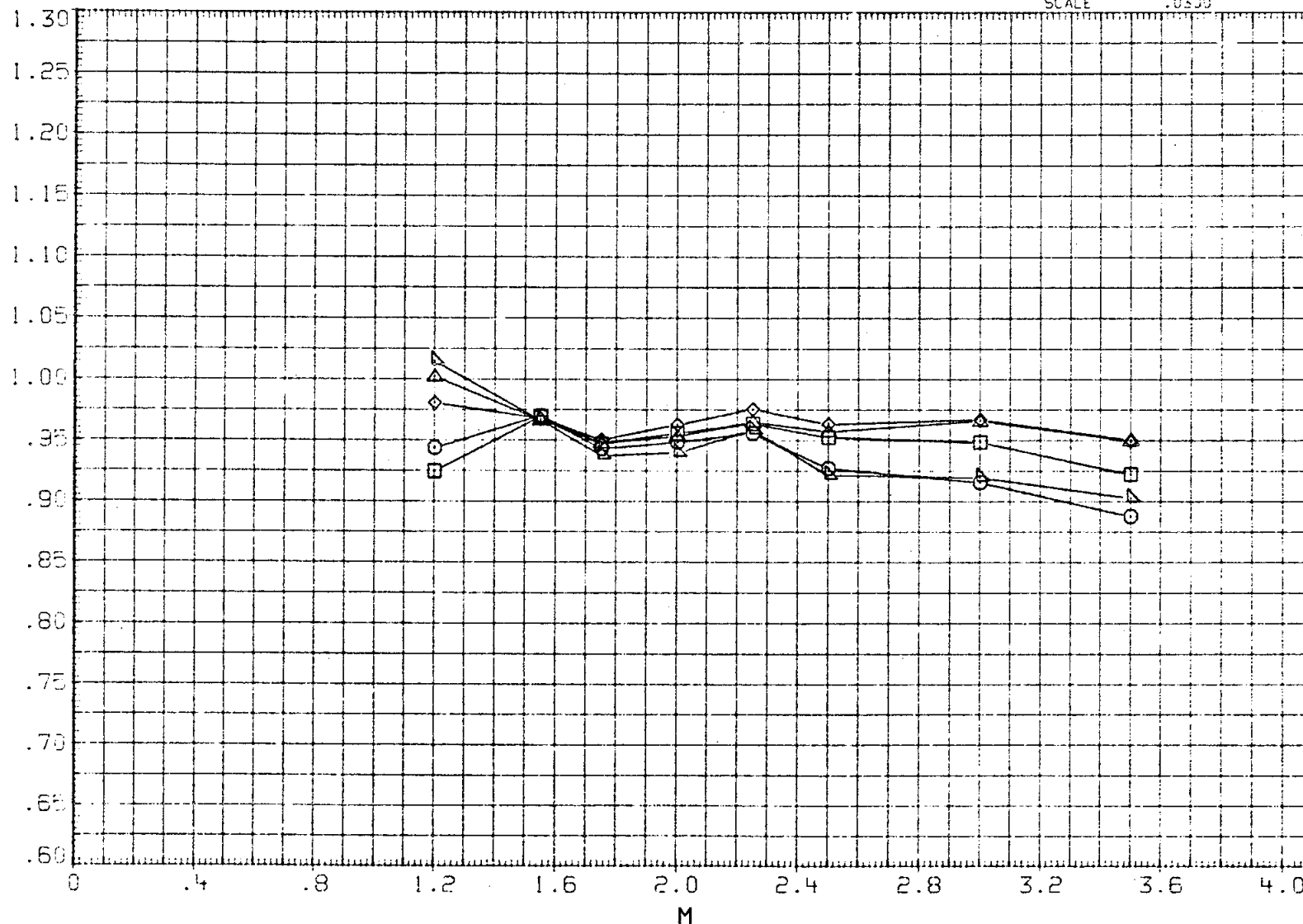


FIG. 15 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

REF 1605  
 SYMBO  
 11-97-87-094 GA167 ORBITER - RAKES  
 CONFIGURATION  
 ALPHA  
 .000  
 6.000  
 12.000  
 18.000  
 24.000  
 BETA  
 .000  
 ALLCON  
 .000  
 .000  
 ELEVON  
 .000  
 BDFLAP  
 -7.170

REFERENCE INFORMATION  
 SREF 2690.0000 SQ.FT.  
 LREF 474.0000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE .0400

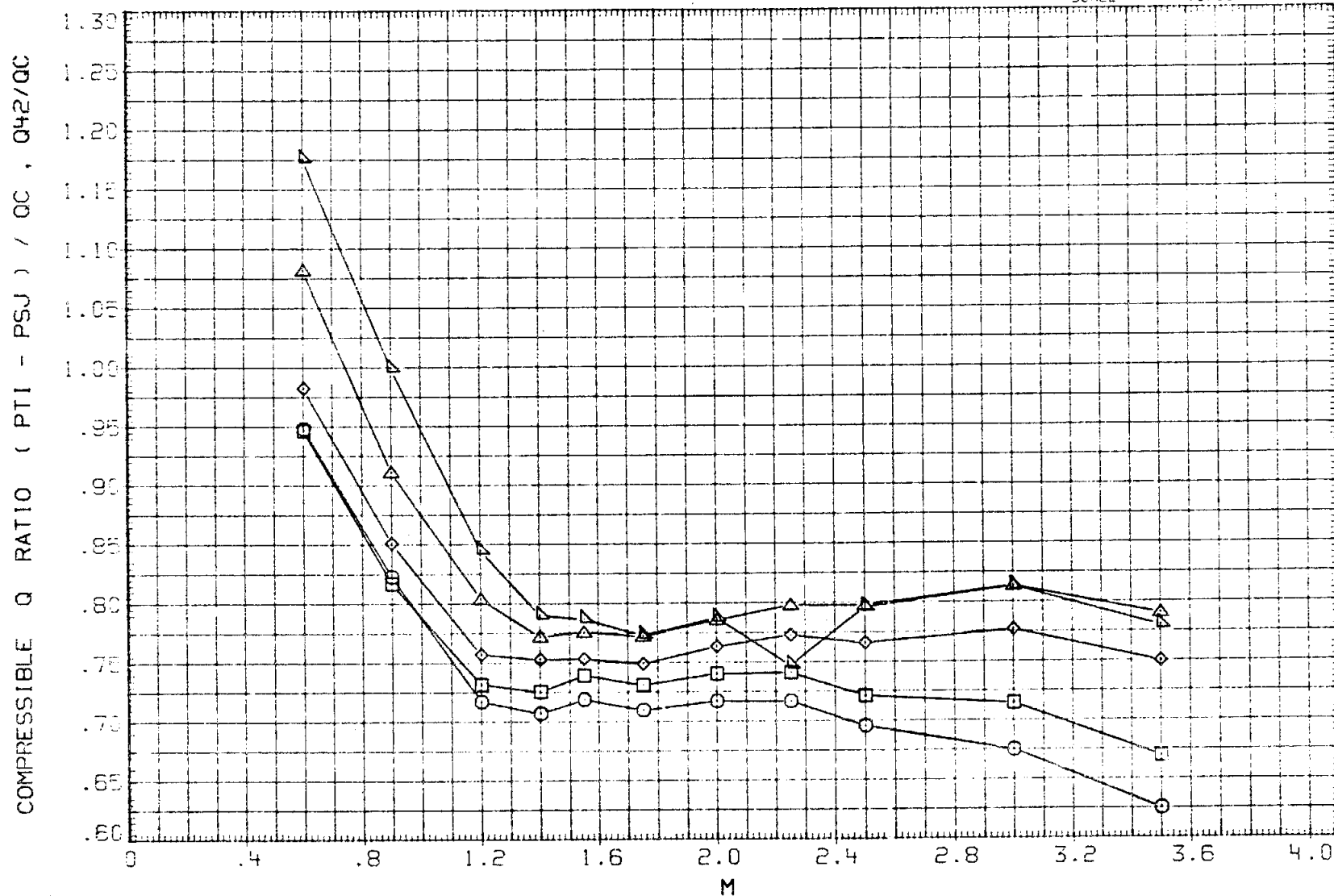


FIG. 15 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q42/QC RIGHT RAKE



FE7B05 CONFIGURATION ARC 11-97-87-09+ 0A161 ORBITER + RAKES

SYMBOL	ALPHA	BETA	PARAMETRIC VALUES	ELEVON	BDCLAP
▽	.000	.000	.000	.000	
◇	.6.000	.000	.000	.000	
△	12.000	.000	.000	.000	
□	18.000	.000	.000	.000	
○	24.000	.000	.000	.000	

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	474.9000	IN.
BREF	935.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

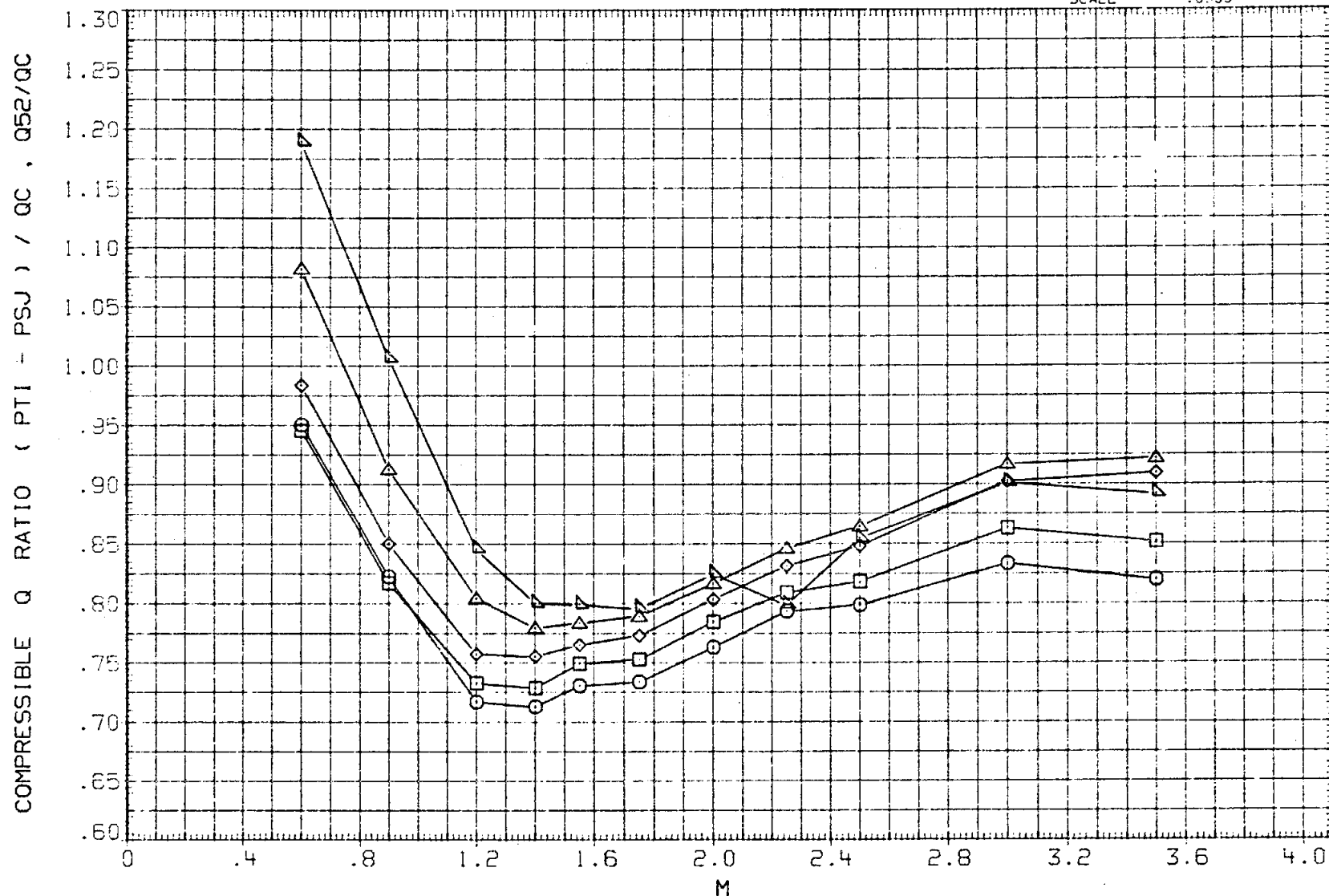


FIG. 15 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

FETB05 CONFIGURATION ARC 11-97-B7-094 OATBI ORBITER + RAKES  
 SYMBOL ALPHA PARAMETRIC VALUES  
 .000 BETA .000 ELEVON .000  
 6.000 AILRON .000 BOFLAP -7.170  
 12.000  
 18.000  
 24.000

REFERENCE INFORMATION  
 SREF 2690.0000 SQ. FT.  
 LREF 474.0000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 378.0000 IN. ZO  
 SCALE .0000

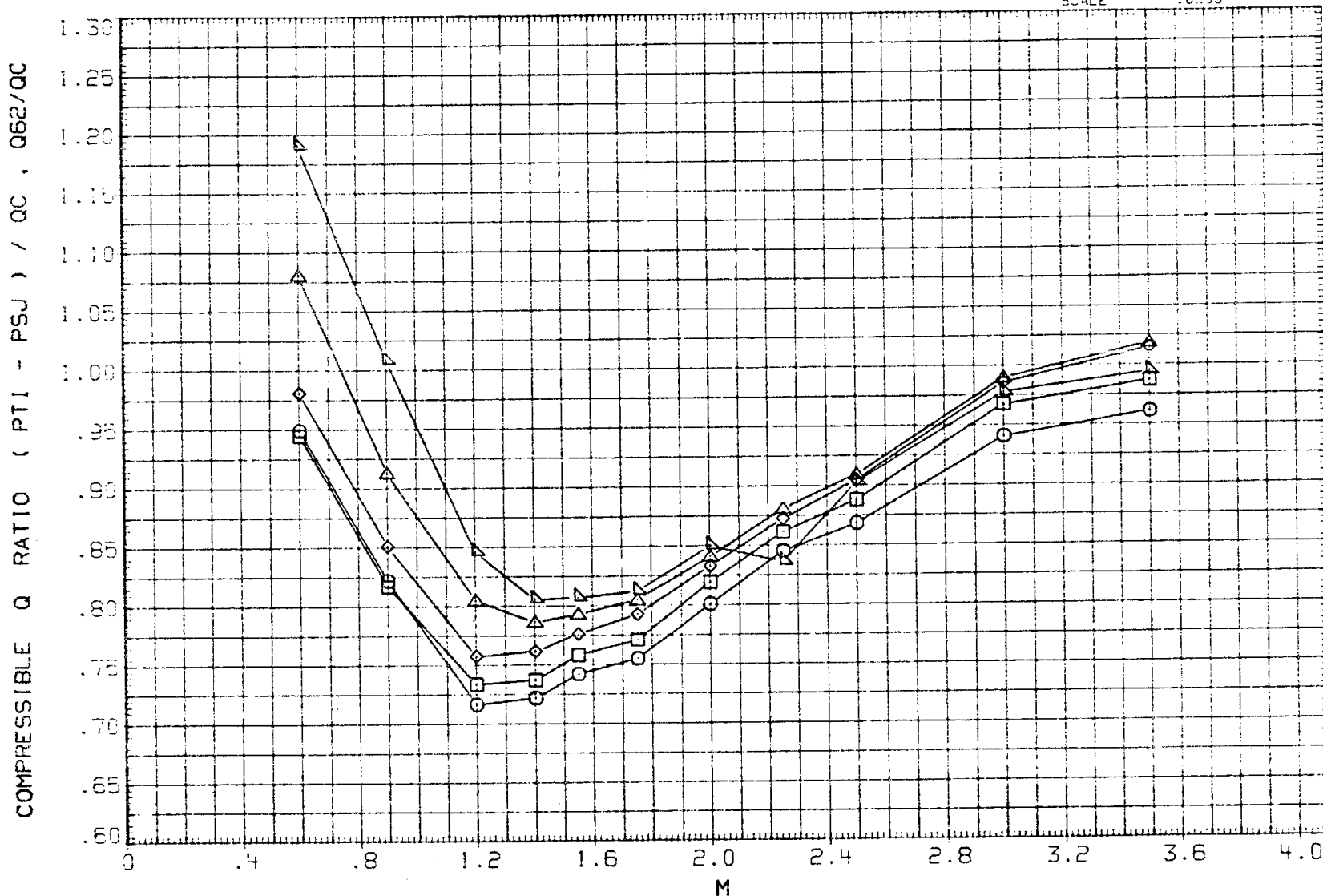


FIG. 15 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO QIJ/QC RIGHT RAKE

FL7B05 CONFIGURATION ARC 11-97-97-09+ 0A161 ORBITER + RAKES

SYMBOL	ALPHA	BETA	PARAMETRIC VALUES	ELEVON	BDFLAP
□	.000			.000	
◇	6.000	AILRON	.000		-7.170
△	12.000				
○	18.000				
▽	24.000				

REFERENCE INFORMATION

	VALUE	UNIT
SREF	2690.0000	SQ.FT.
LREF	474.9000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

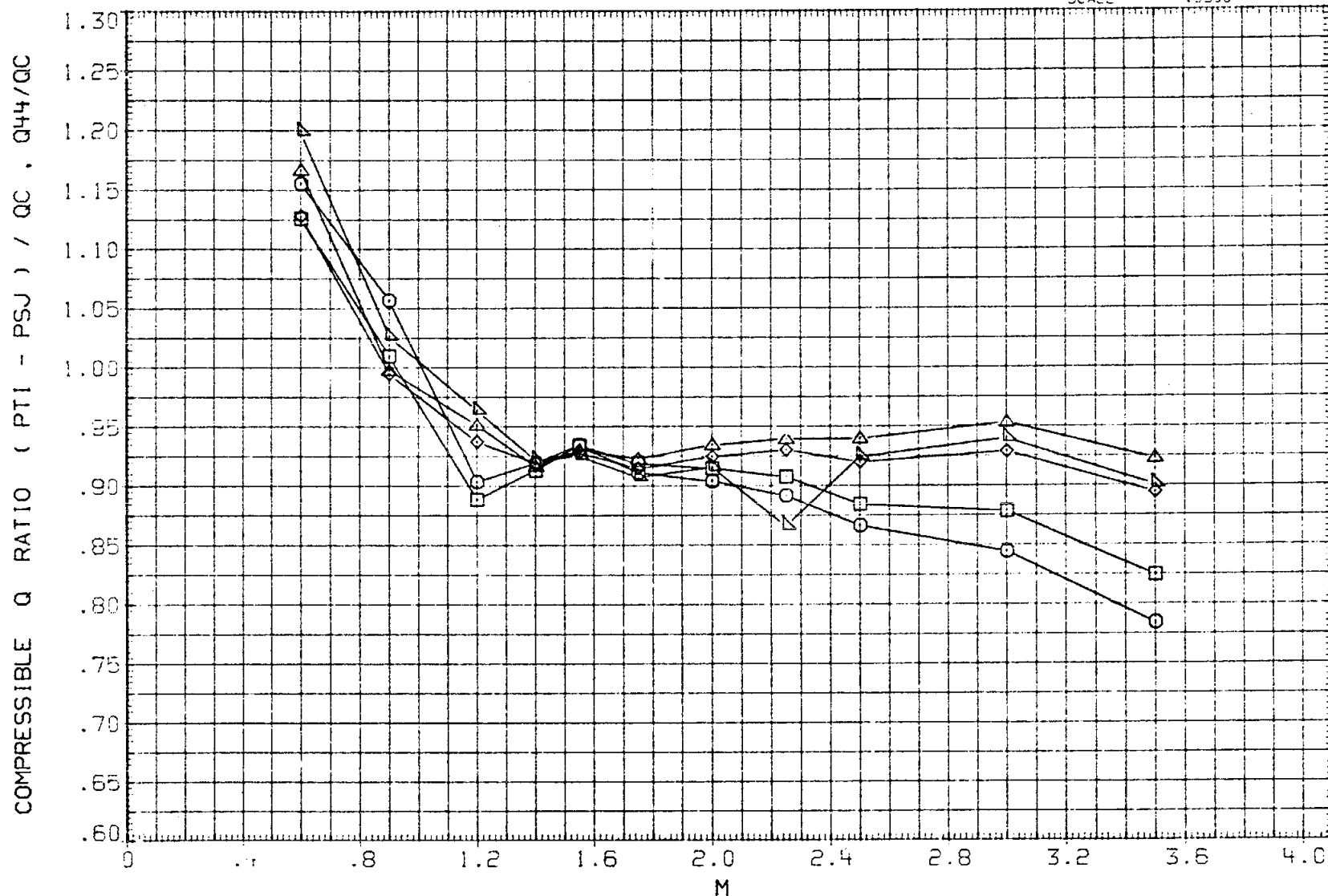


FIG. 15 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

SYMBOL

ALPHA

PARAMETRIC VALUES

SREF 2690.0000 SQ.FT  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

.000

BETA

.000

ELEVON

.000

6.000

AILRON

.000

BOFLAP

-7.170

12.000

18.000

24.000

COMPRESSIBLE Q RATIO ( PTI - PSJ ) / QC . Q54/QC

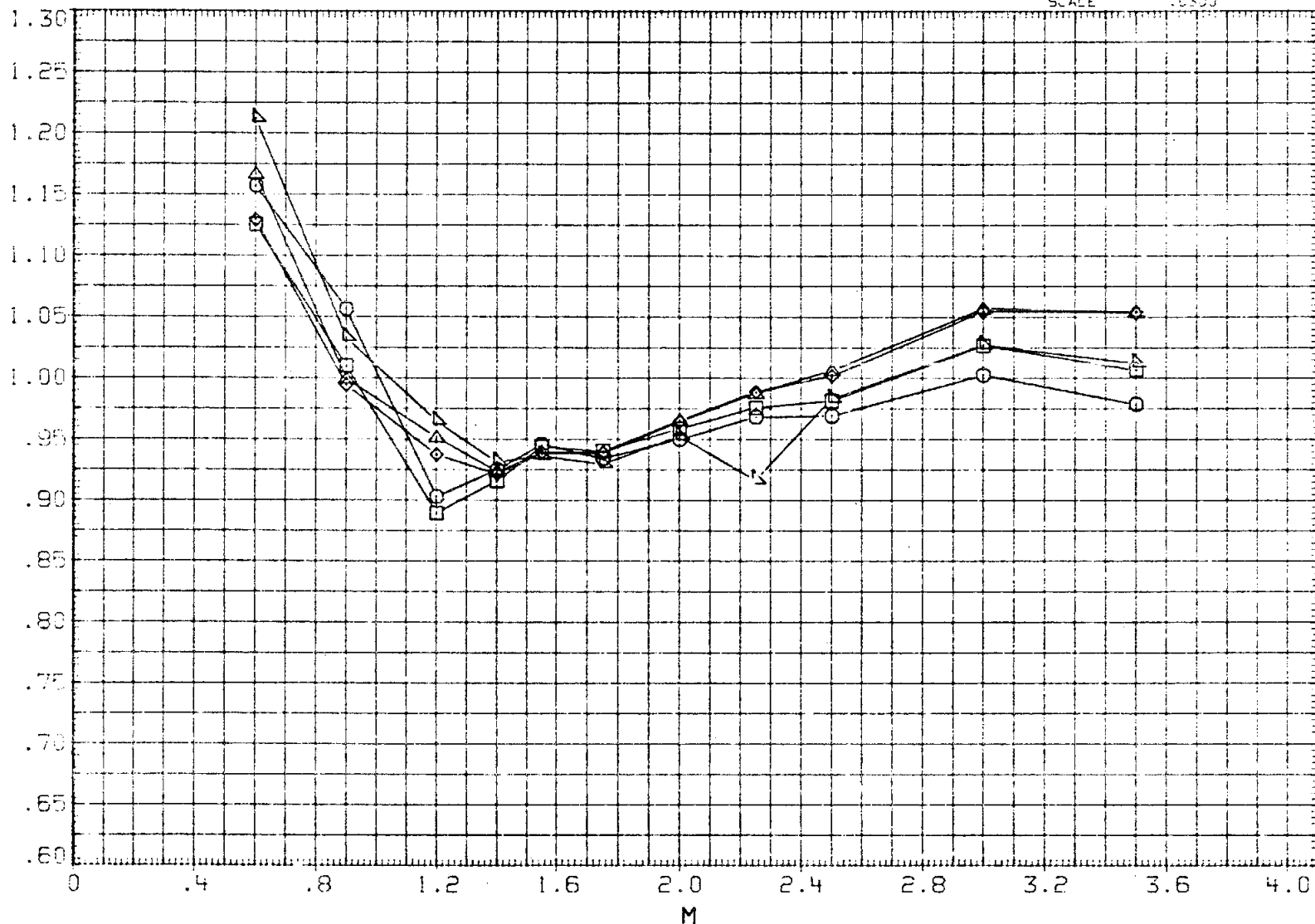


FIG. 15 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

FE7B05 CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL

ALPHA	PARAMETRIC VALUES			
.000	BETA	.000	ELEVON	.000
6.000	AILRON	.000	BDFLAP	-7.170
12.000				
18.000				
24.000				

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
XMRF	1076.6800	IN. XO
YMRF	.0000	IN. YO
ZMRF	375.0000	IN. ZO
SCALE	.0300	

COMPRESSIBLE Q RATIO ( PT1 - PSJ ) / QC , Q64/QC

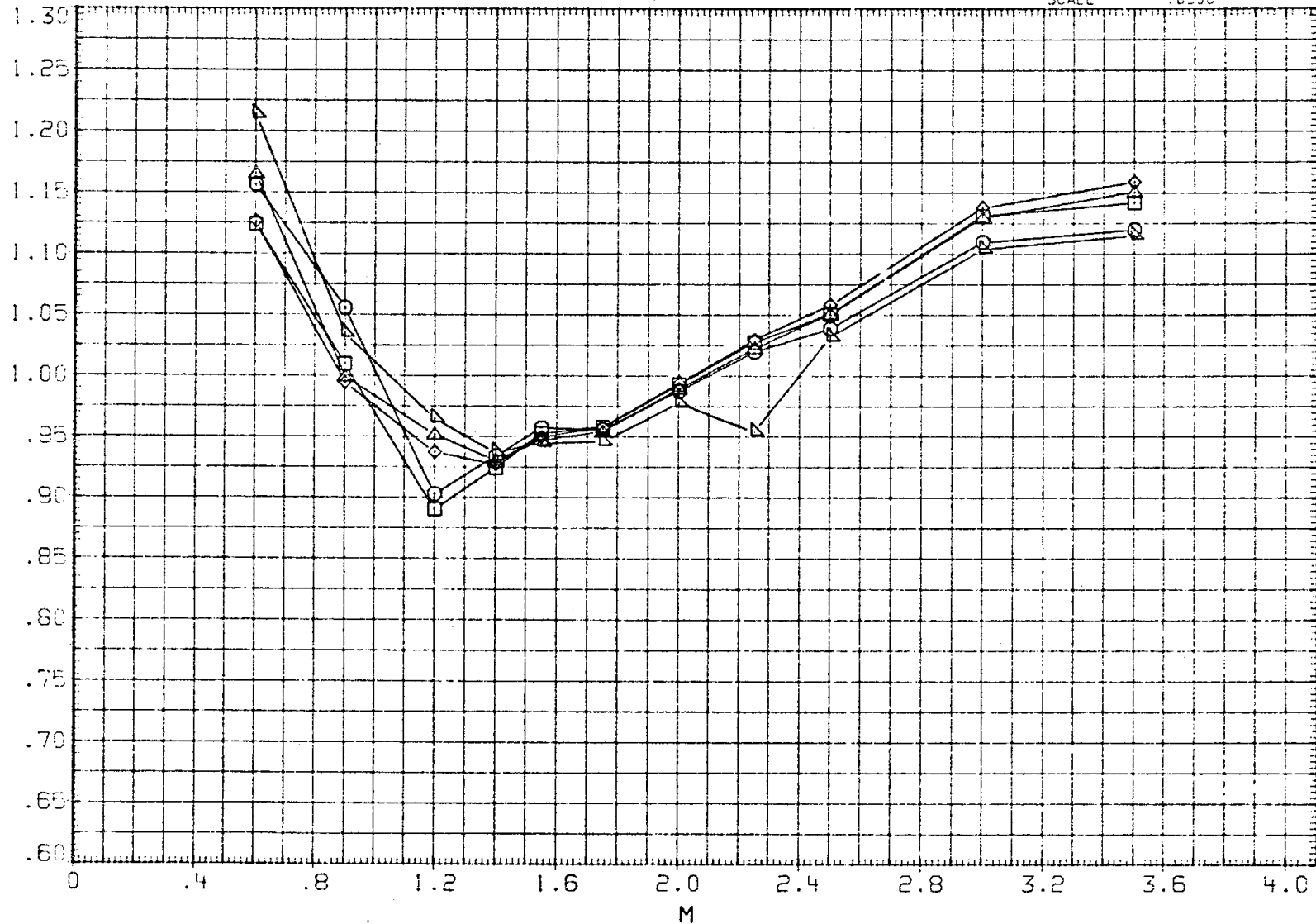


FIG. 15 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

FFB07  
 SYMBOL  
 1.000  
 6.000  
 12.000  
 18.000  
 24.000

CONFIGURATION ARC 11-97-87-094 04161 ORBITER + RAKES  
 PARAMETRIC VALUES  
 BETA 5.000 ELEVON .000  
 AILRON .000 BOFLAP -7.170

REFERENCE INFORMATION  
 SPER 2690.0000 SQ. FT.  
 LREF 474.8000 IN.  
 BREF 936.6300 IN.  
 XMRP 1076.6800 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE .0000

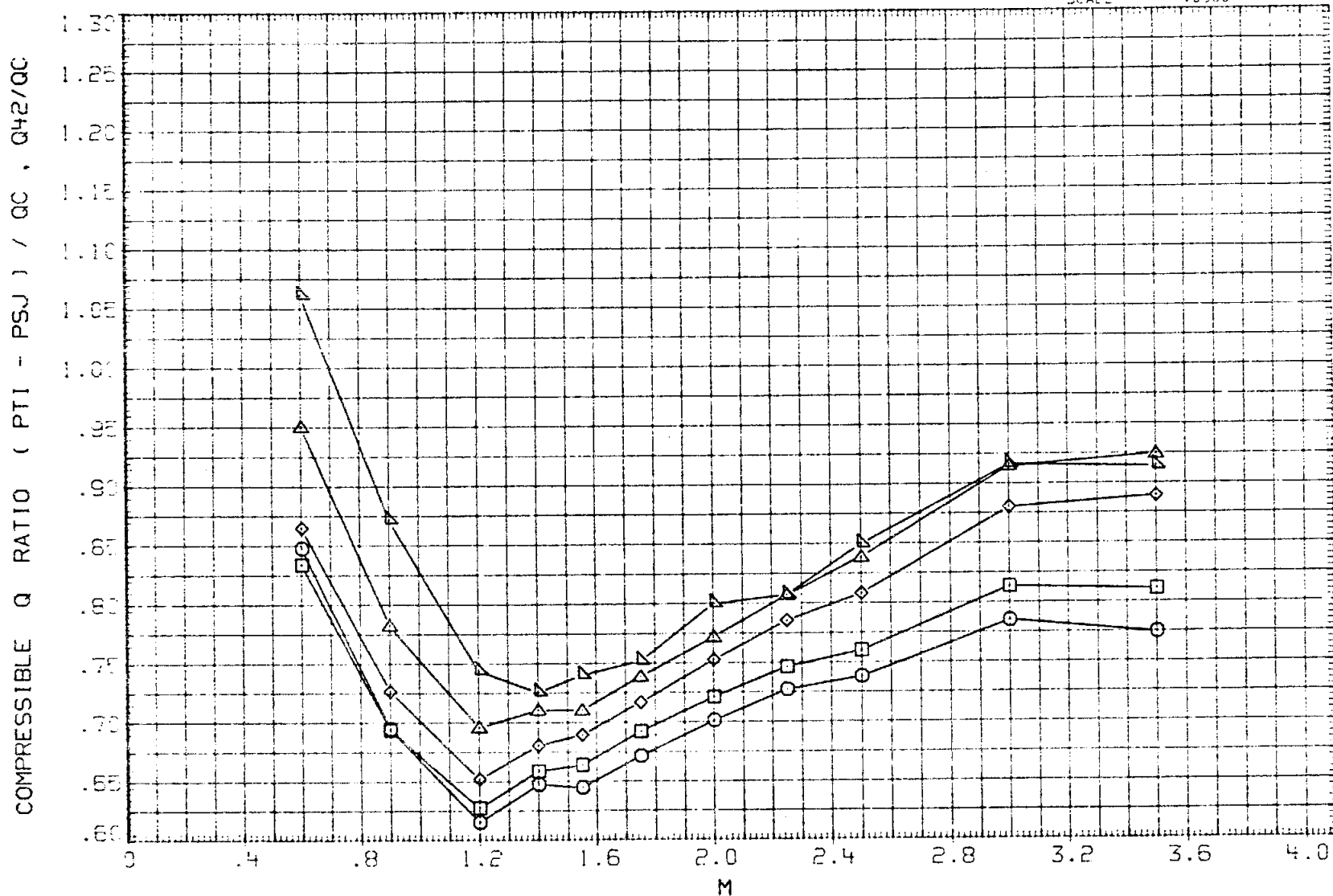


FIG. 15 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

FET807 CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL ALPHA PARAMETRIC VALUES  
 1.000 BETA 5.000 ELEVON 1.000  
 6.000 AILRON .000 BDFLAP -7.170  
 12.000  
 18.000  
 24.000

REFERENCE INFORMATION

SREF 2690.0000 SQ. FT.  
 LREF 474.8000 IN.  
 BREF 935.6800 IN.  
 XMPP 1075.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.6000 IN. ZO  
 SCALE .0300

COMPRESSIBLE Q RATIO ( PT1 - PSJ ) / QC , Q52/QC

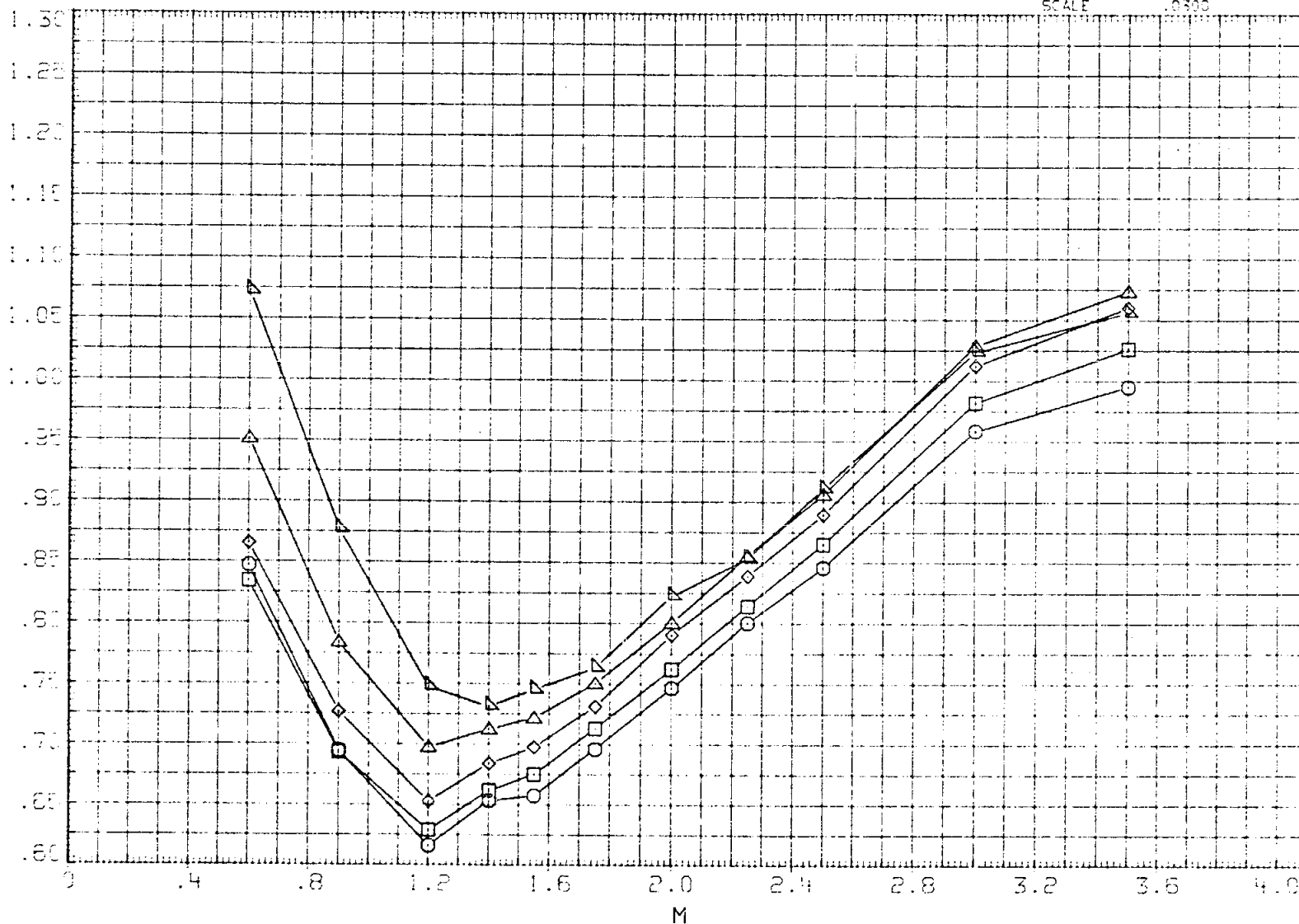


FIG. 15 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1/QC RIGHT RAKE

FET307 CONFIGURATION ARC 11-97-87-094 CA161 ORBITER - RAKES  
 SYMBOL ALPHA PARAMETRIC VALUES  
 .000 BETA 5.000 ELEVON .000  
 6.000 AILRON .000 BDFLAP -7.170  
 12.000  
 18.000  
 24.000

REFERENCE INFORMATION  
 SREF 2690.0000 50. FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

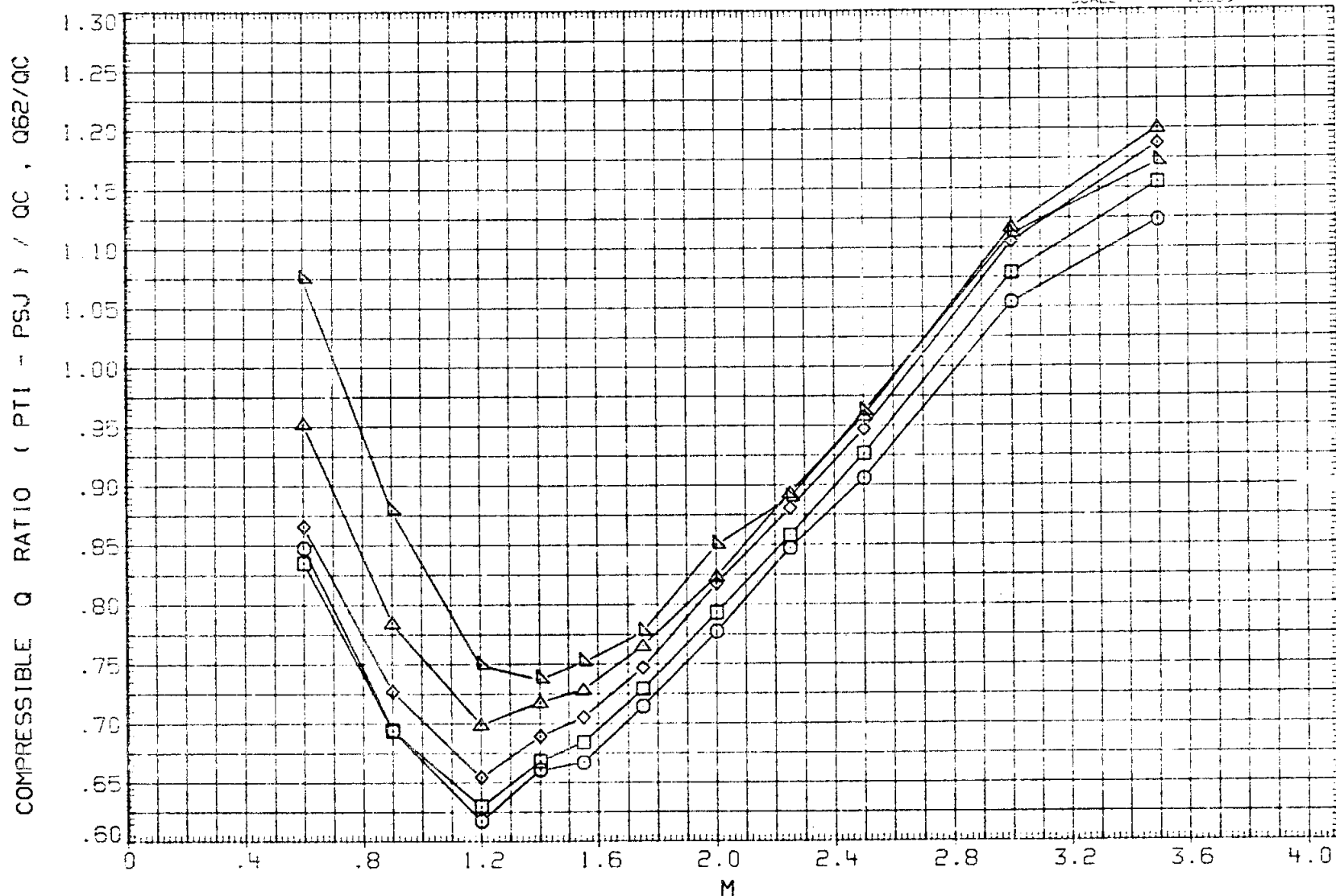


FIG. 15 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1/QC RIGHT RAKE



FE7807 CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

SYMBOL

PARAMETRIC VALUES			
ALPHA	BETA	ELEVON	BOFLAP
.000	5.000	.000	-7.170
6.000	AILRON		
12.000			
18.000			
24.000			

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

COMPRESSIBLE Q RATIO ( PTI - PSJ ) / QC , Q44/QC

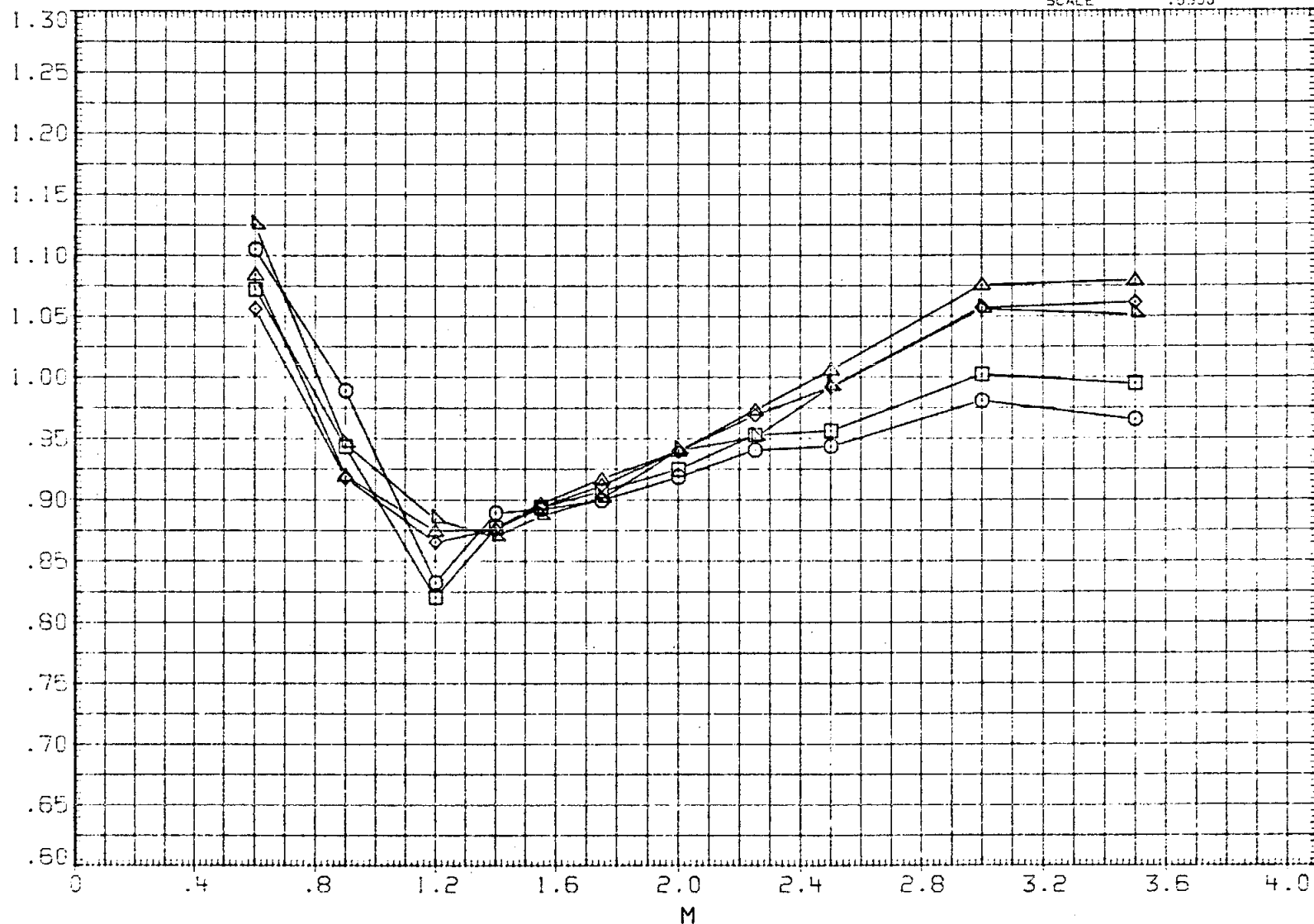


FIG. 15 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

FE7007 CONFIGURATION ARC 11 07 07 004 CASE: ORBITER - RAKES  
 SYMBOL ALPHA BETA 5.000 ELEVON .000  
 6.000 AILRON .000 BOFLAP -7.170  
 12.000  
 18.000  
 24.000

REFERENCE INFORMATION  
 SREF 2680.0000 SQ.FT.  
 LREF 404.6000 IN.  
 BREF 938.6000 IN.  
 XMPP 1076.6800 IN. XO  
 YMP 0.0000 IN. YO  
 ZMPP 375.0000 IN. ZO  
 SCALE .0300

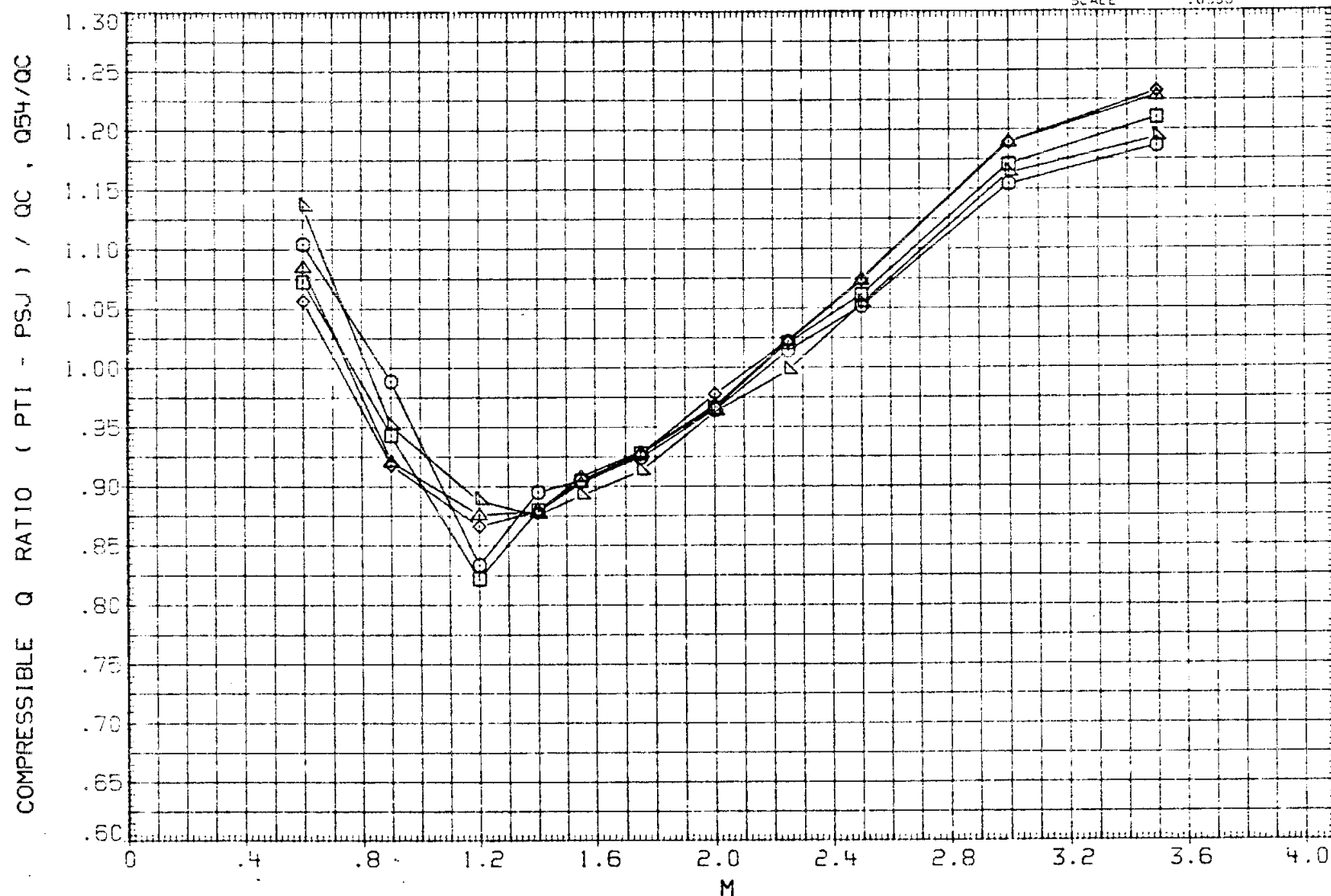


FIG. 15 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO QIJ/QC RIGHT RAKE

FE7807 CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL

ALPHA

PARAMETRIC VALUES

.000	BETA	5.000	ELEVON	.000
6.000	AILRON	.000	SDFLAP	-7.170
12.000				
18.000				
24.000				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	336.6800	IN.
XMRP	76.5800	IN. XO
YMRP	.0000	IN. YO
ZMRP	75.0000	IN. ZO
SCALE	.0300	

COMPRESSIBLE Q RATIO ( PTI - PSJ ) / QC , Q64/QC

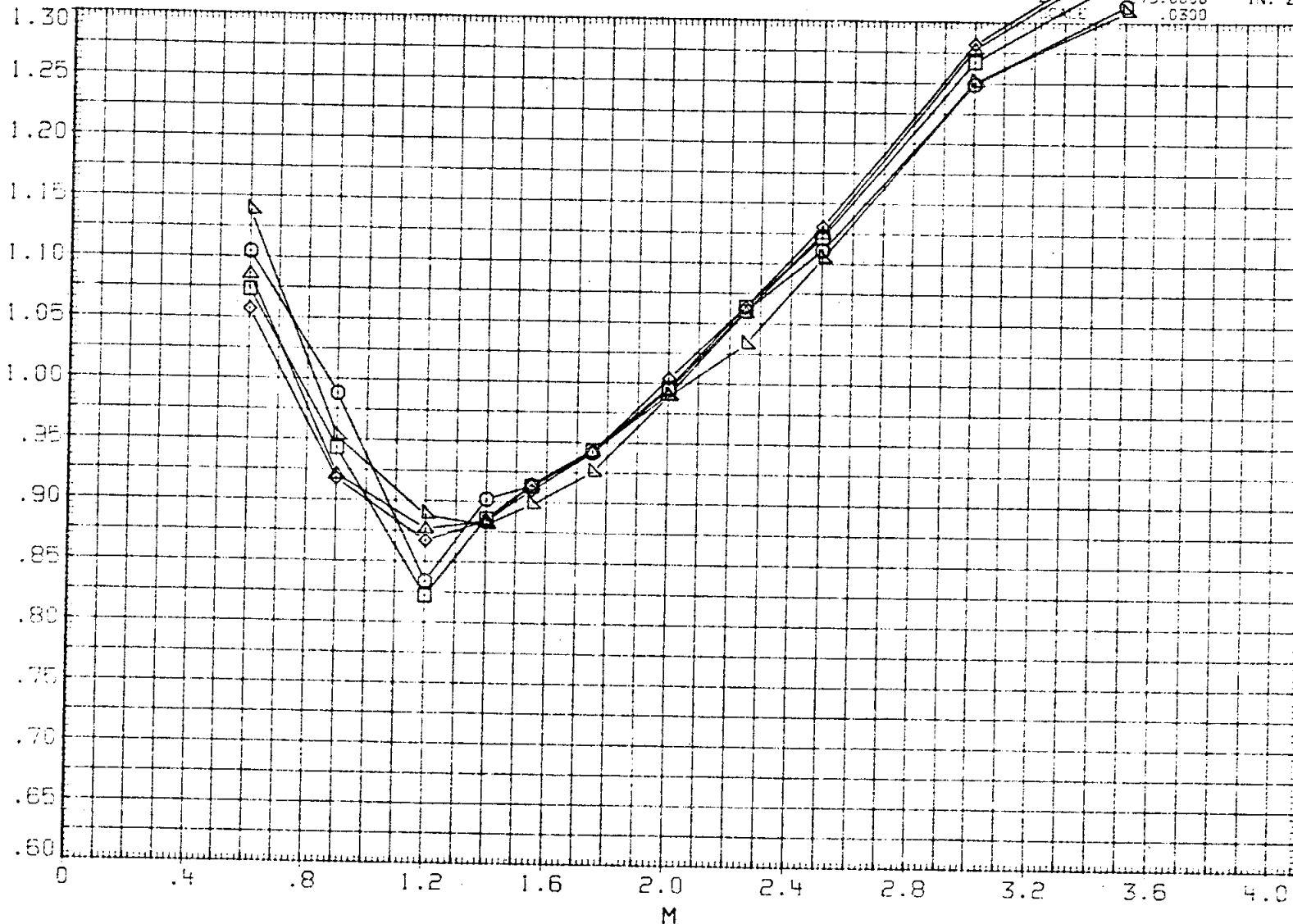


FIG. 15 EFFECT OF ALPHA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

FL7003  
SYMBOL

CONFIGURATION ARC 11-97-87-094 OA181 ORBITER - RAKES  
PARAMETRIC VALUES  
ALPHA .000 BETA -5.000 ELEVON .000  
6.000 AILRON .000 BOFLAP -7.170  
12.000  
18.000  
24.000

REFERENCE INFORMATION  
SREF 2690.0000 50.FT.  
LREF 474.8000 IN.  
BREF 936.6900 IN.  
XMRP 1076.6800 IN. X0  
YMRP .0000 IN. Y0  
ZMRP 375.0000 IN. Z0  
SCALE .0500

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PT1-PSJ ) , DPQ42

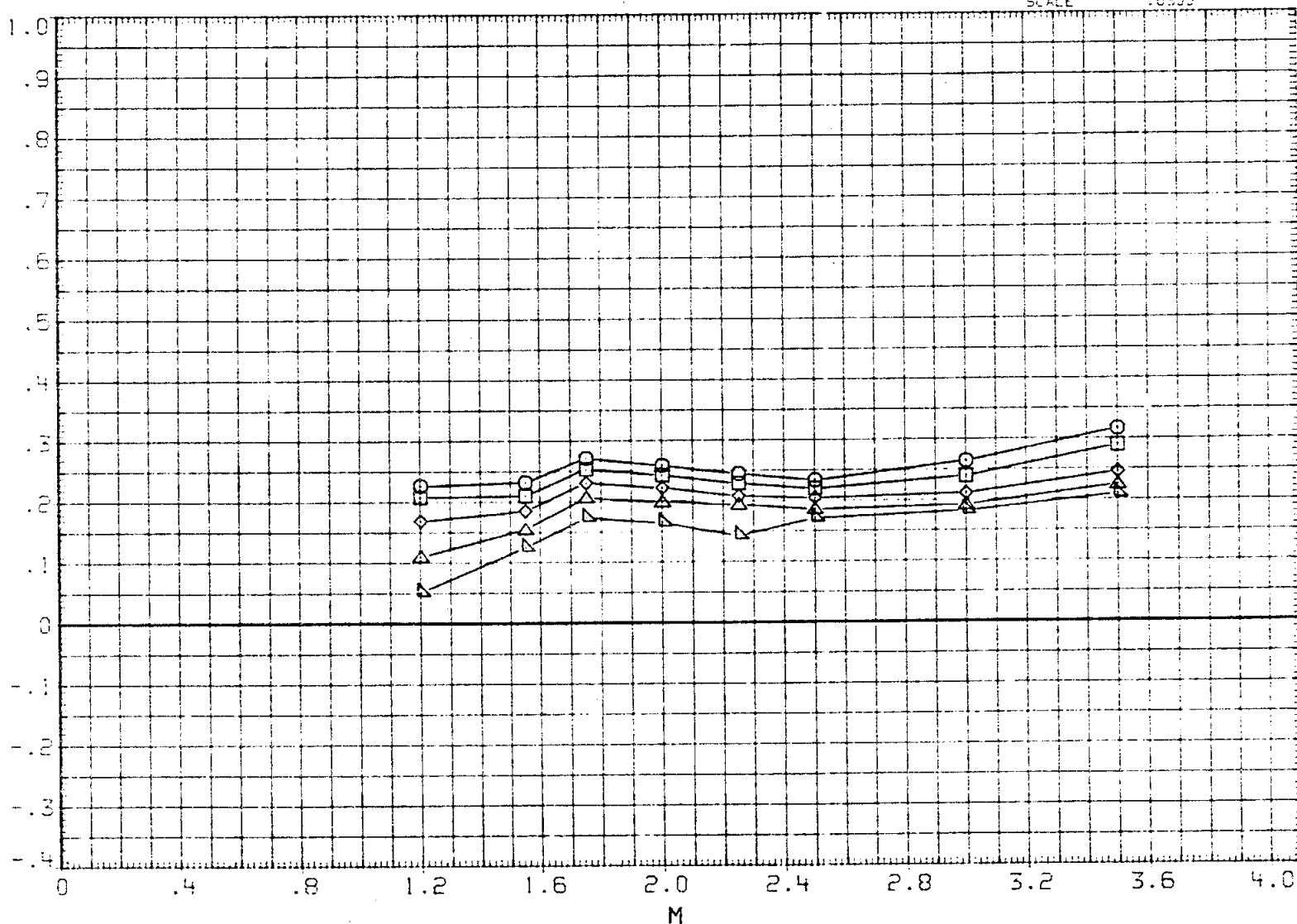


FIG. 16 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P /Q1J RIGHT RAKE

FE7033  
SYN 2

CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES

PARAMETRIC VALUES				
ALPHA	BETA	-5.000	ELEVON	.000
6.000	AILRON	.000	BOFLAP	-7.170
12.000				
18.000				
24.000				

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	935.6300	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

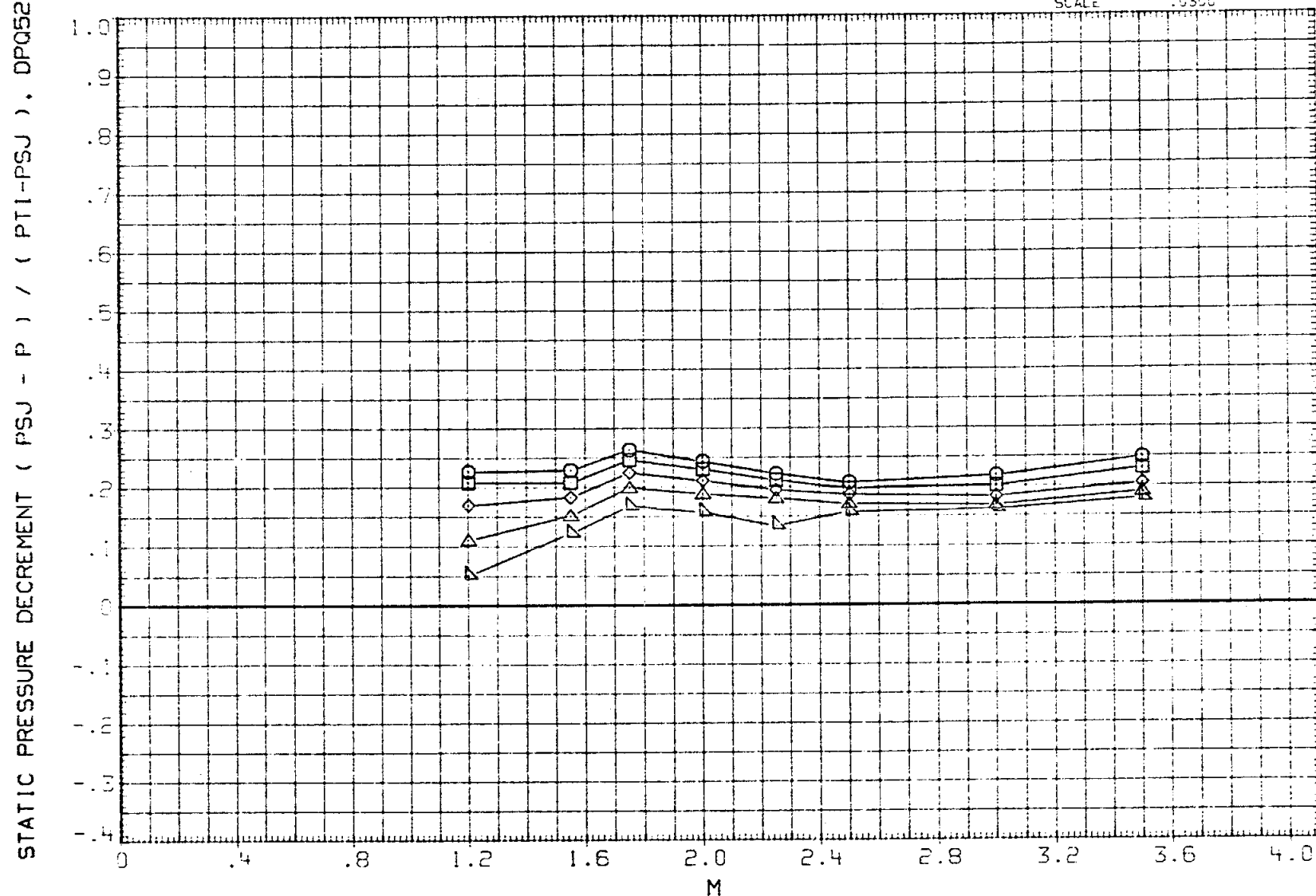


FIG. 16 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P / QIJ RIGHT RAKE

STATIC PRESSURE DECREMENT (PSJ - P) / (PTI - PSJ), DPQ6244400

CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES

A. FRA	PARAMETRIC VALUES
--------	-------------------

.000	BETA	-5.000	ELEVON	.000
6.000	AILRON	.000	BDFLAP	-7.170
12.000				
18.000				
24.000				

### REFERENCE INFORMATION

SREF	2899.0000	50.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6900	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0200	IN. ZO
SCALE	.0300	

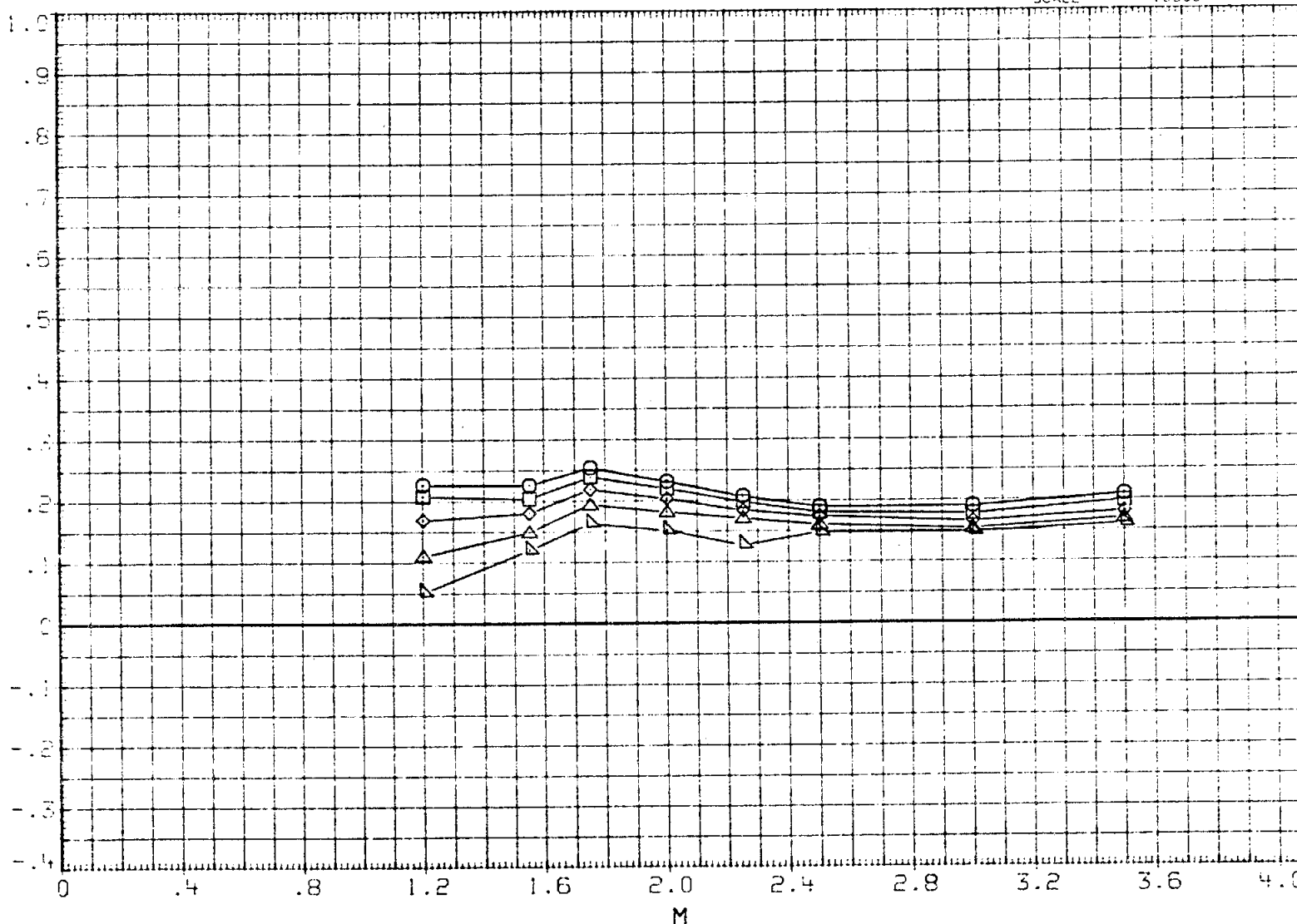


FIG. 16 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P /QIJ RIGHT RAKE

FE7D02  
SYMBOL

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

PARAMETRIC VALUES			
ALPHA	BETA	-5.000	ELEVON
.000	AILRON	.000	BOFLAP
6.000			-7.170
12.000			
18.000			
24.000			

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6900	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PTI-PSJ ) , DPQ44

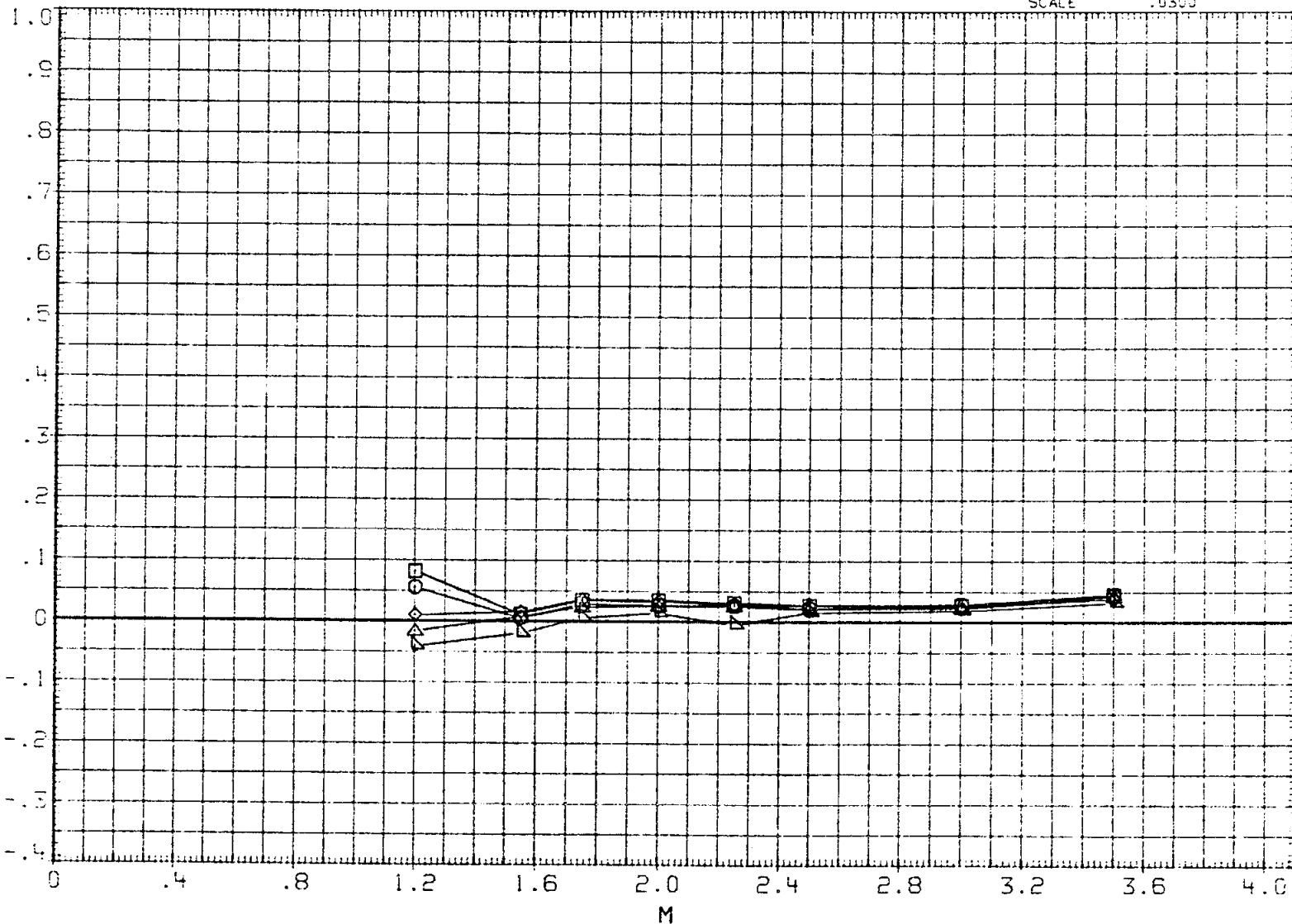


FIG. 16 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P / QIJ RIGHT RAKE

FE7003  
SYMBOL

CONFIGURATION ARC 11-97-B7-094 CAT61 ORBITER - RAKES

PARAMETRIC VALUES

ALPHA	BETA	ELEVON	BDFLAP
.000	-5.000	.000	-7.170
6.000	.000		
12.000			
18.000			
24.000			

REFERENCE INFORMATION

SRF	2690.0000	50. FT.
LRFC	474.6000	IN.
BRFC	938.0000	IN.
YMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0000	

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PT1-PSJ ) , DPQ5470000

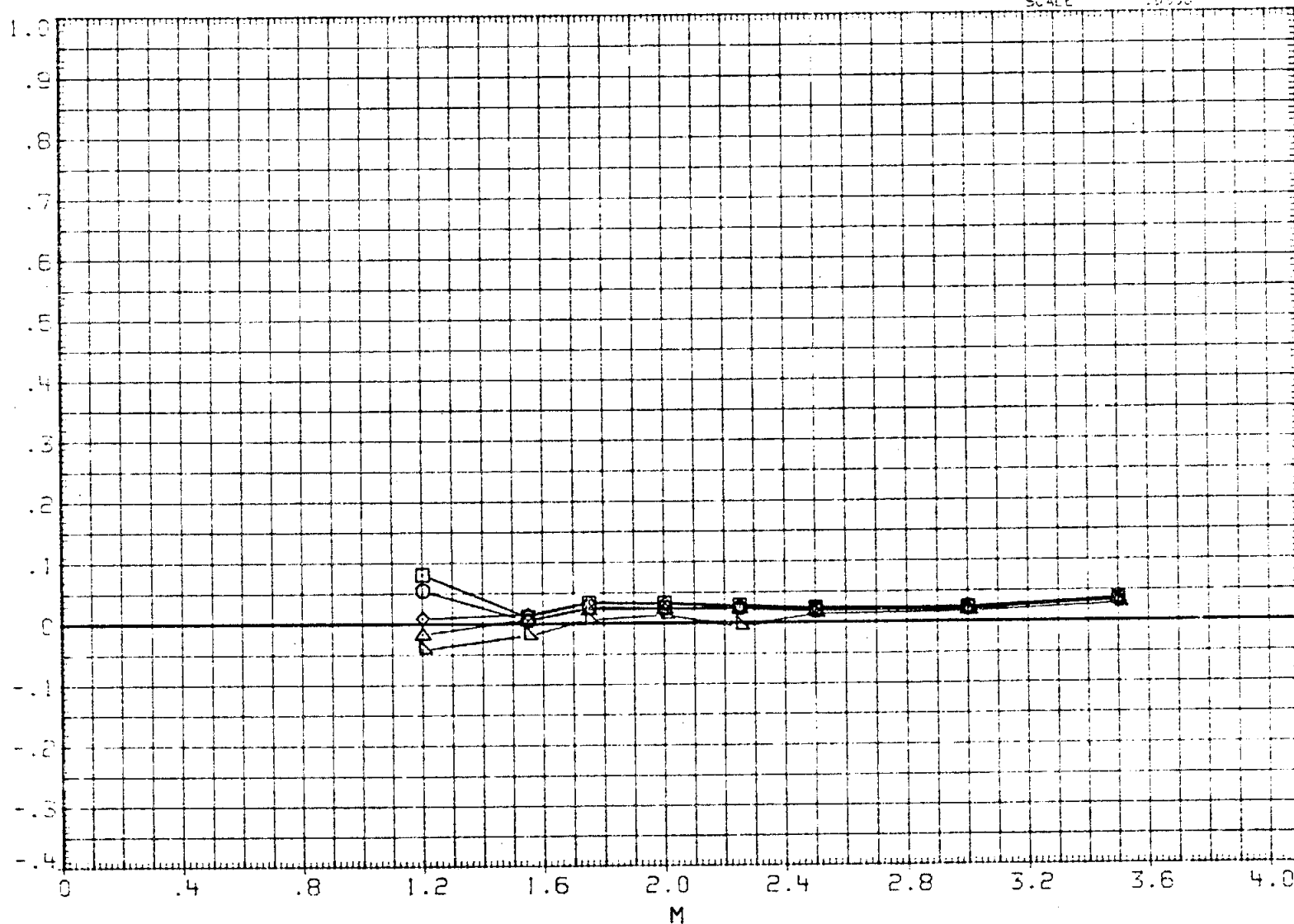


FIG. 16 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P / Q1J RIGHT RAKE



FE7D03  
SYMBOL

CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES

PARAMETRIC VALUES			
ALPHA	BETA	ELEVON	
.000	-5.000	.000	
6.000	AILRON	BUFLAP	-7.170
12.000			
18.000			
24.000			

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PT1-PSJ ) , DPQ64

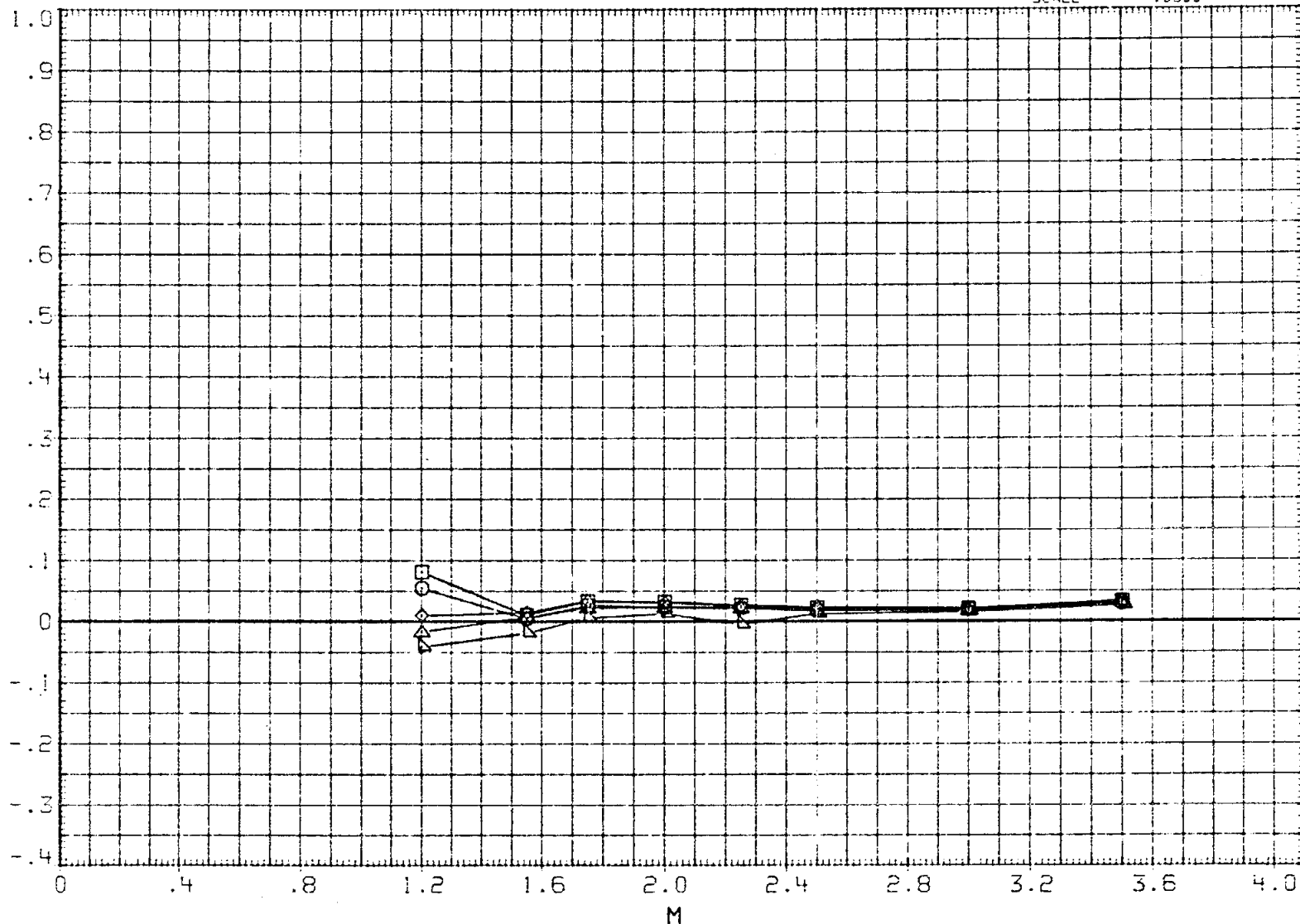


FIG. 16 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P /Q1J RIGHT RAKE

FE7005  
SYMBOL

CONFIGURATION ARC 11-97-97-094 OA161 ORBITER \* RAKES

PARAMETRIC VALUES			
ALPHA	BETA	ELEVON	BOFLAP
.000	.000	.000	.000
6.000	ATLON	.000	-7.170
12.000			
18.000			
24.000			

REFERENCE INFORMATION

GRFF	2690.0000	SO. FT.
URFF	474.8000	IN.
BRFF	936.6000	IN.
YMRP	1076.6000	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PT1-PSJ ) , DPQ421000

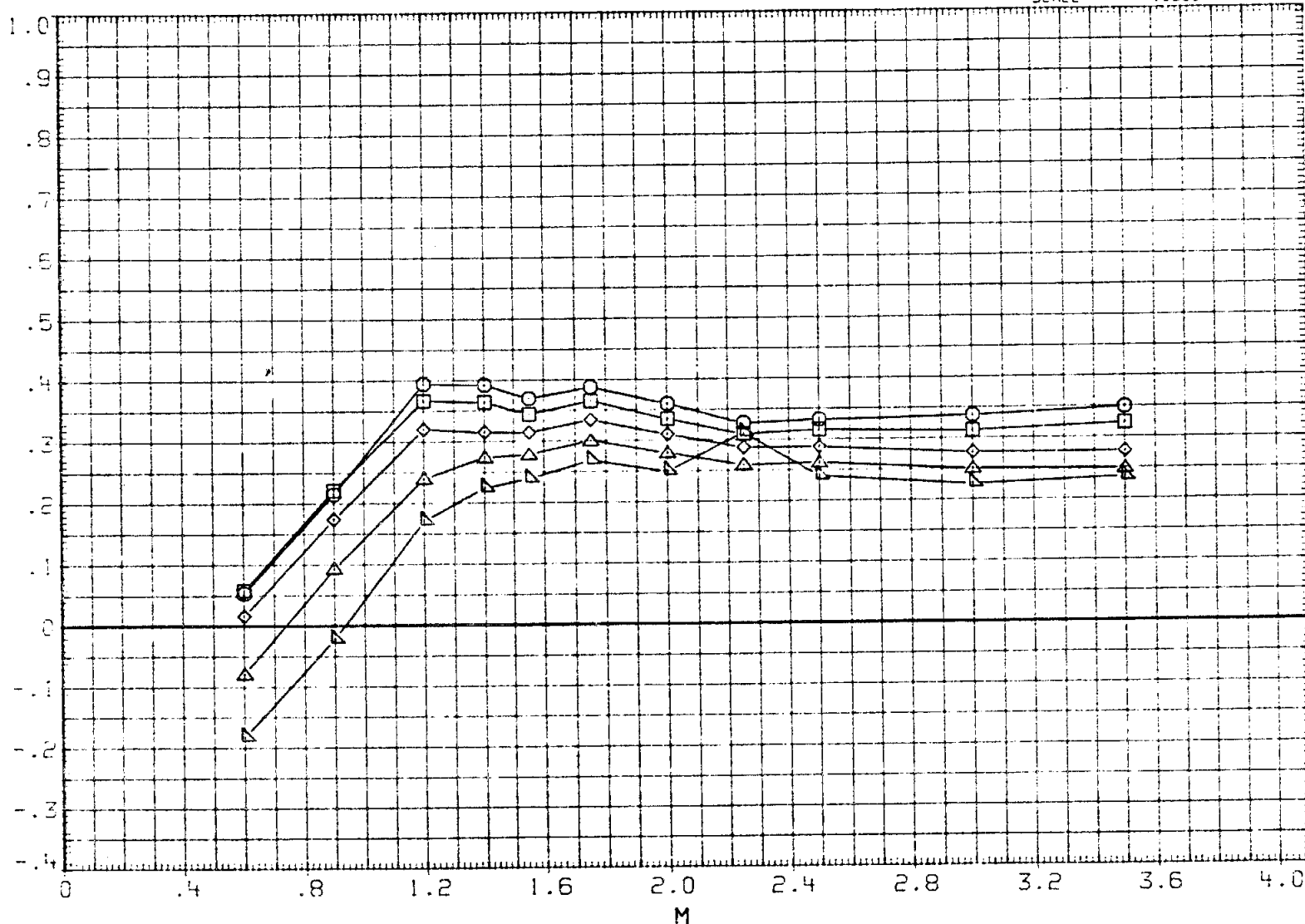


FIG. 16 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P /Q1J RIGHT RAKE

FE7005  
SYMBOL

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

PARAMETRIC VALUES			
ALPHA	BETA	ELEVON	
.000	.000	.000	
6.000	AILRON	BDFLAP	-7.170
12.000			
18.000			
24.000			

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PTI - PSJ ) , DPQ52

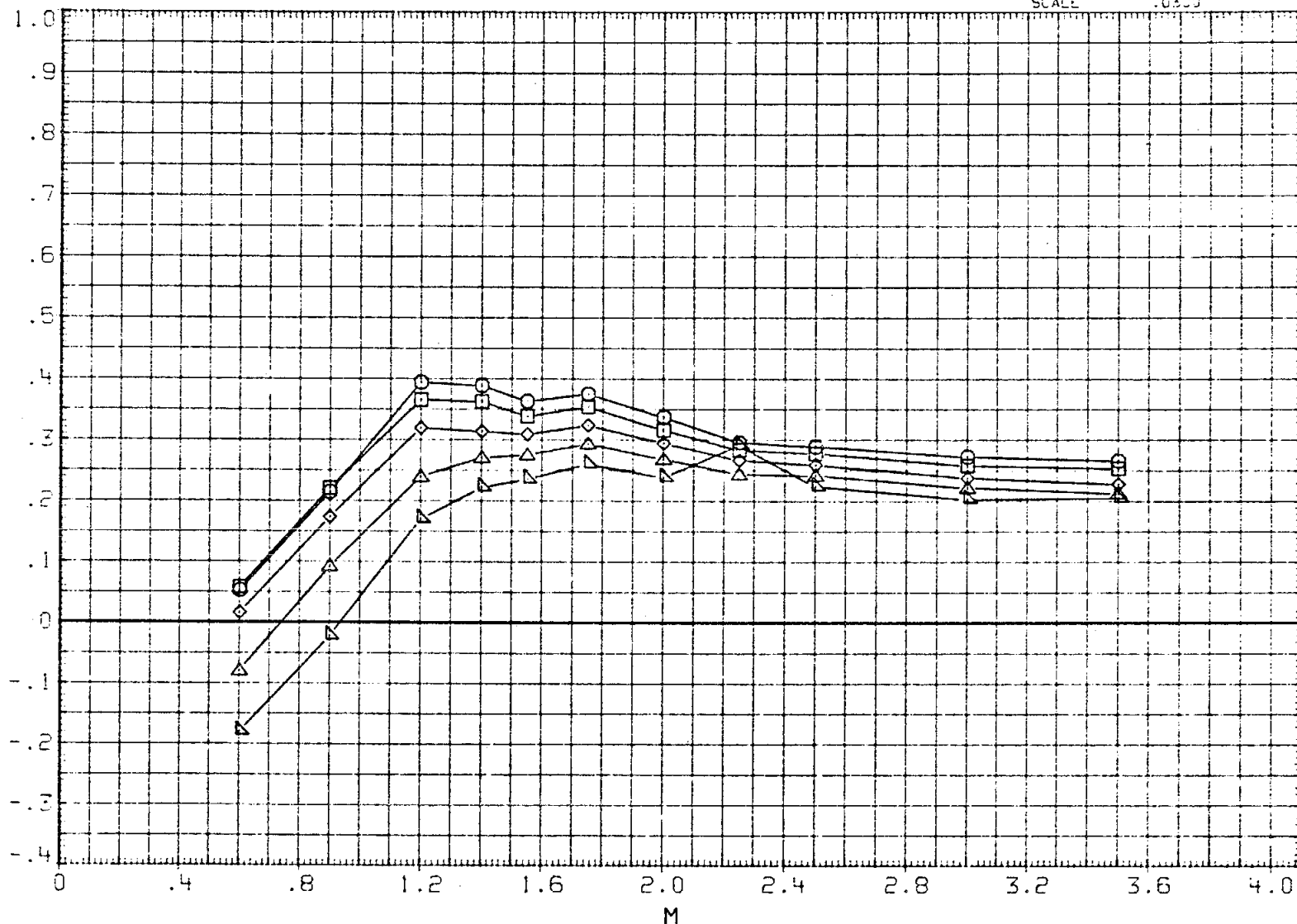


FIG. 16 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P / QIJ RIGHT RAKE

FE7D05  
SYMBOL

CONFIGURATION ARC 11-97-87-094 0A161 ORBITER < RAKES  
PARAMETRIC VALUES  
ALPHA .000 BETA .000 ELEVON .000  
6.000 AILRON .000 BOFLAP -7.170  
12.000  
18.000  
24.000

REFERENCE INFORMATION  
SREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 935.6800 IN.  
XMRP 1076.6900 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PTI-PSJ ) , DPQ62 / Q10

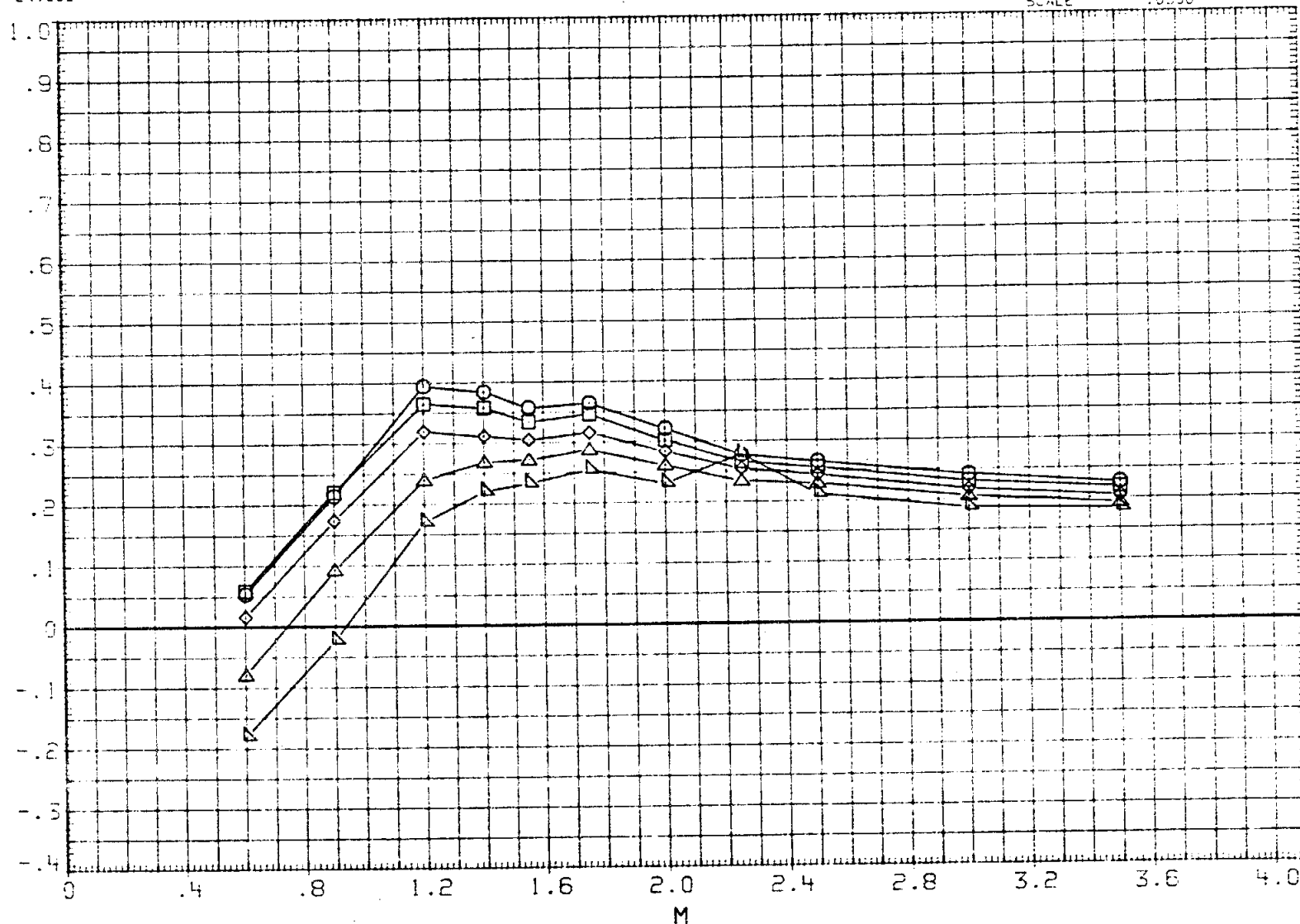


FIG. 16 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P / Q10 RIGHT RAKE

FE7D05  
SYMBOL

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

PARAMETRIC VALUES			
ALPHA	BETA	ELEVON	.000
.000	AILRON	BOFLAP	-7.170
6.000			
12.000			
18.000			
24.000			

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.9000	IN.
BREF	935.6000	IN.
XMPP	1075.6000	IN. X0
YMPP	.0000	IN. Y0
ZMPP	375.0000	IN. Z0
SCALE	.0300	

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PTI-PSJ ) , DPQ44

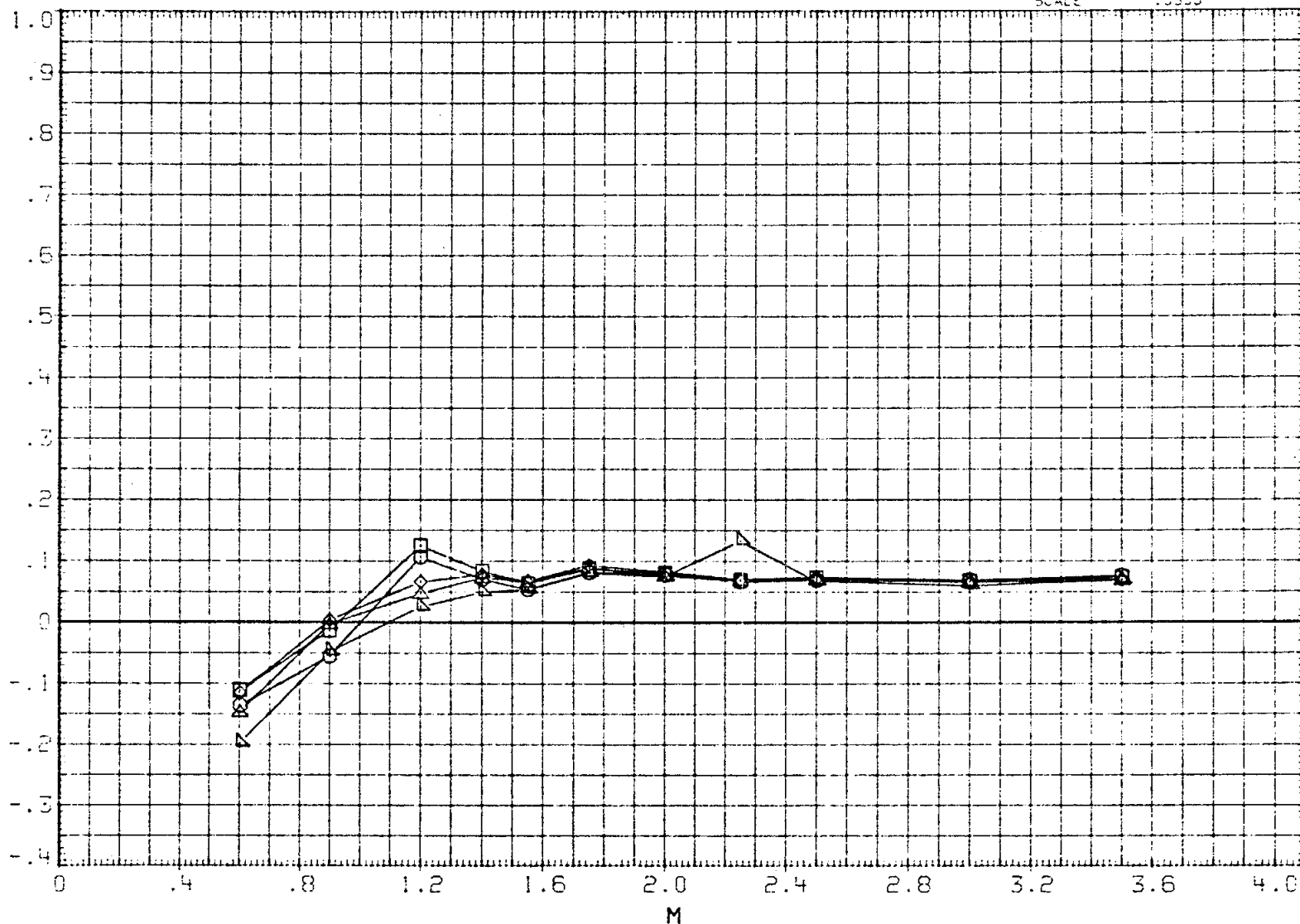


FIG. 16 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P / QIJ RIGHT RAKE

FET005  
SYMBOL

CONFIGURATION ARC 11-97-87-09K 0A161 ORBITER + RAKES  
PARAMETRIC VALUES  
ALPHA .000 BETA .000 ELEVON .000  
6.000 AILRON .000 BDFLAP -7.170  
12.000  
18.000  
24.000

REFERENCE INFORMATION  
SREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
YMPP 1076.6800 IN. YO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0000

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PT1-PSJ ) , DPQ5470000

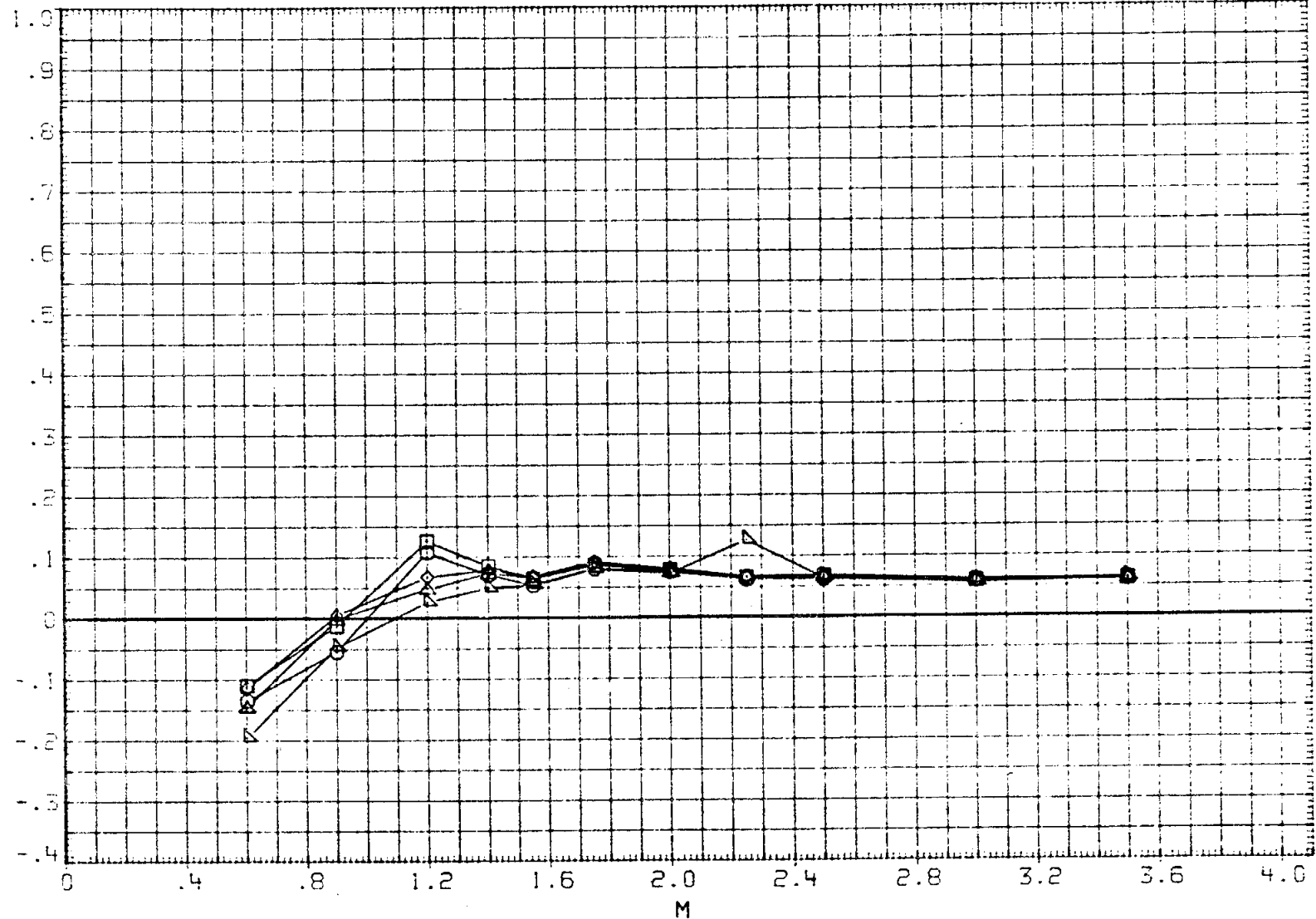


FIG. 16 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P /Q1J RIGHT RAKE

FE7D05  
SYMBOL

CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES

PARAMETRIC VALUES			
ALPHA	BETA	ELEVON	
.000	.000	.000	
6.000	AILRON	BOFLAP	-7.170
12.000			
18.000			
24.000			

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	474.8900	IN.
BREF	935.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PTI-PSJ ) , DP064 / Q100

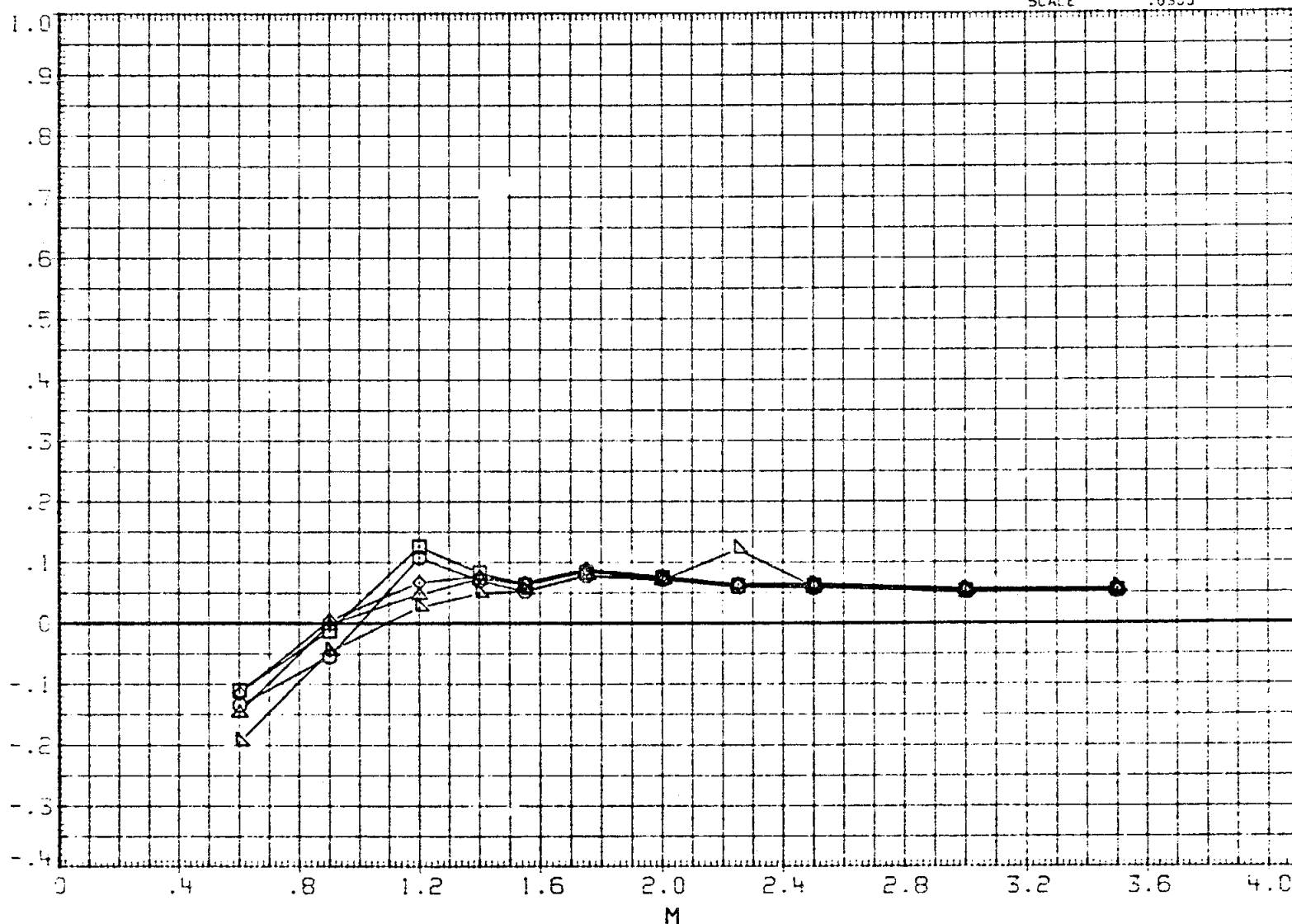


FIG. 16 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P / Q100 RIGHT RAKE

FET007  
SYMBOL

CONFIGURATION ARC 11-87-87-084 OA161 ORBITER 4 RAKES  
PARAMETRIC VALUES  
ALPHA .000 BETA 5.000 ELEVON .000  
6.000 AILRON .000 BOFLAP -7.170  
12.000  
18.000  
24.000

REFERENCE INFORMATION  
SREF 2650.0000 SQ.FT.  
LREF 474.0000 IN.  
BREF 925.0000 IN.  
YMRP 1076.6600 IN. X0  
YMRP .0000 IN. Y0  
ZMRP 375.0000 IN. Z0  
SCALE .0300

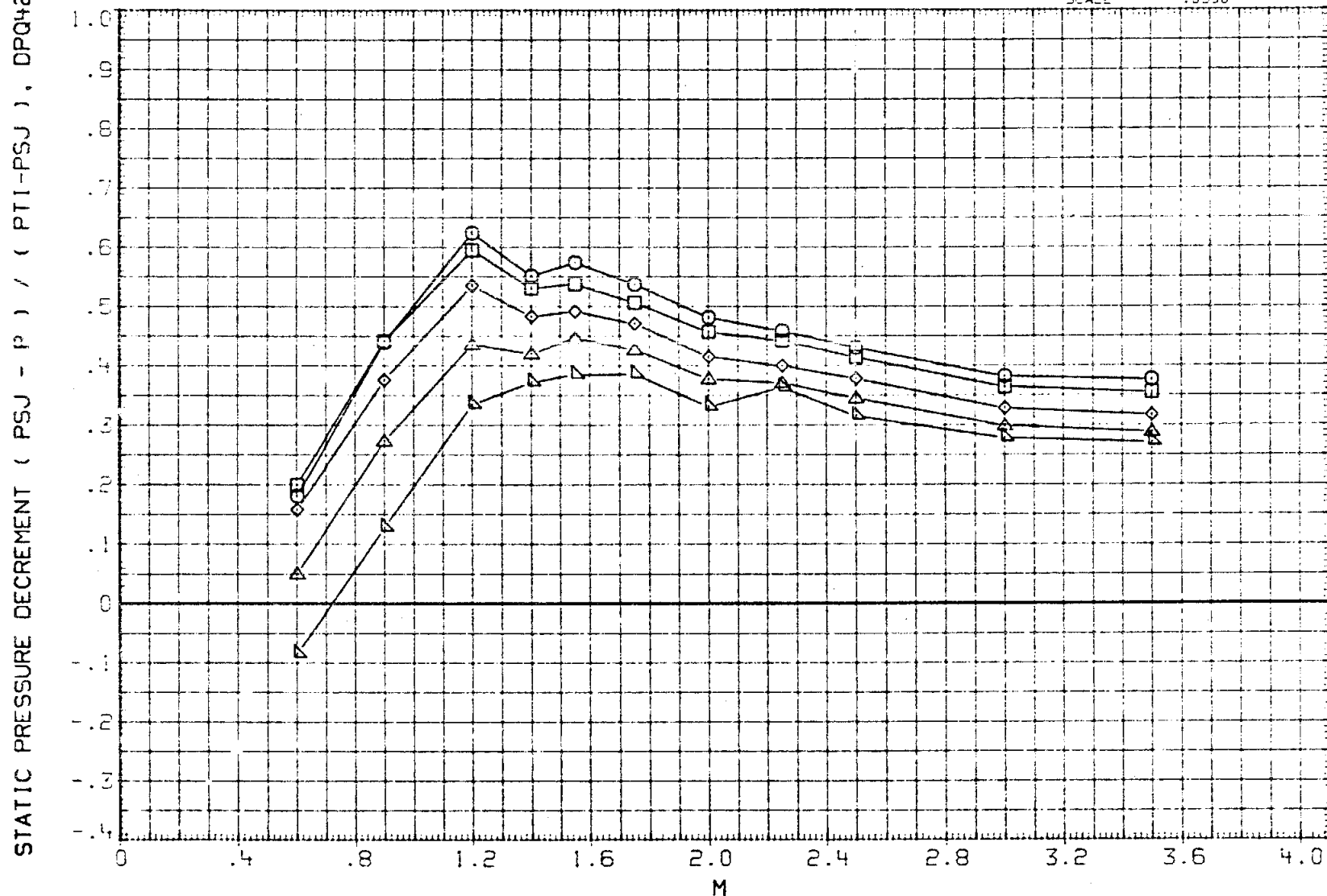


FIG. 16 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P / Q1J RIGHT RAKE



FE7D07  
SYMBOL

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

PARAMETRIC VALUES			
ALPHA	BETA	5.000	ELEVON
.000	AILRON	.000	BDFLAP
6.000			-7.170
12.000			
18.000			
24.000			

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6900	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PTI-PSJ ) , DPQ527DQO

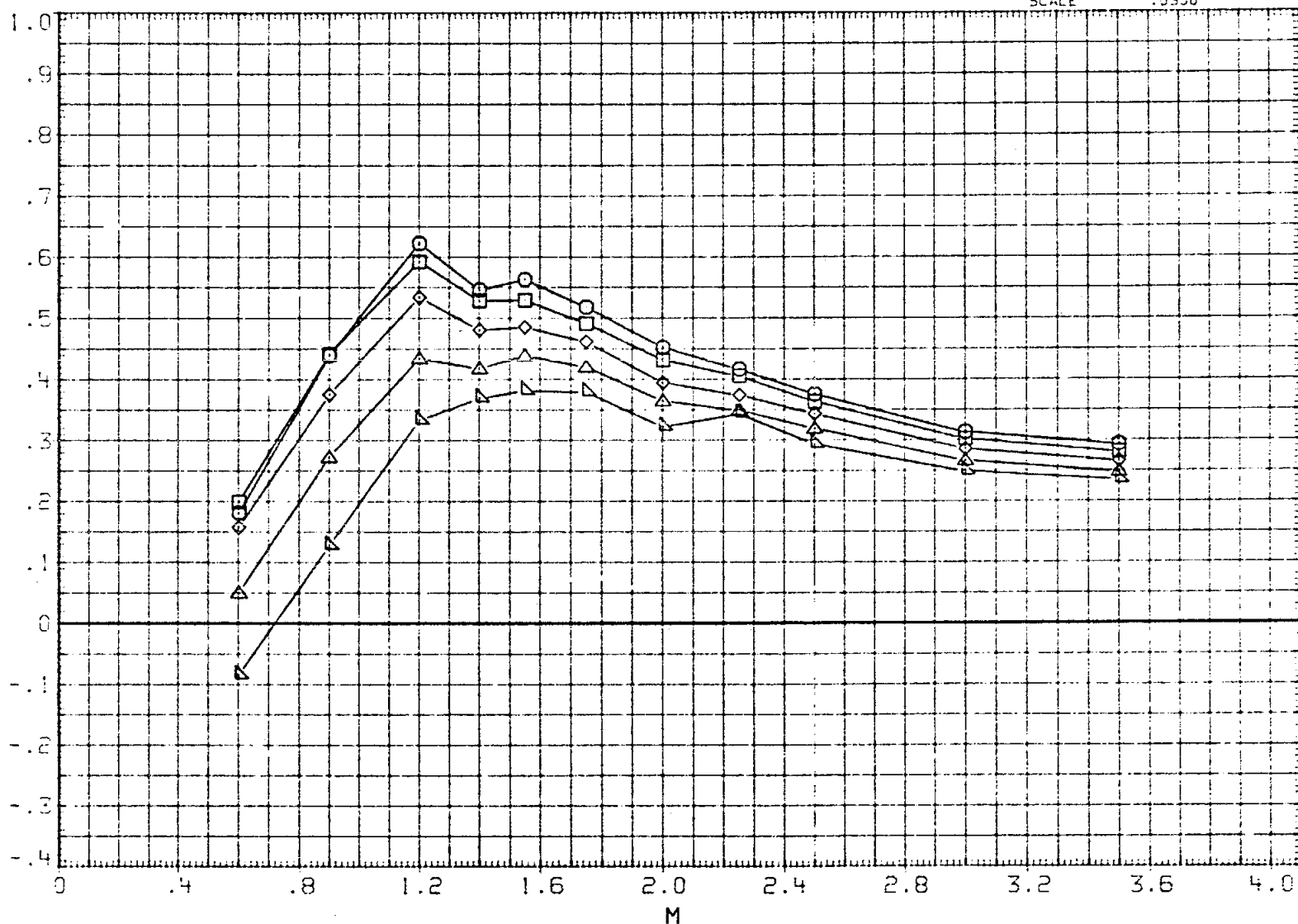


FIG. 16 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P /QIU RIGHT RAKE

FE7003  
SYMBOL

CONFIGURATION ARC 11-97-B7-09 OAI61 ORBITER + RAKES  
PARAMETRIC VALUES  
ALPHA 5.000 BETA 5.000 ELEVON .000  
12.000 AILERON .000 BDFLAP -7.170  
18.000  
24.000

REFERENCE INFORMATION  
SREF 2590.0000 SQ.FT.  
LREF 474.0000 IN.  
BREF 936.0000 IN.  
XMRP 1076.6800 IN. X0  
YMRP .0000 IN. Y0  
ZMRP 375.0000 IN. Z0  
SCALE .0000

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PTI - PSJ ) , DPQ627/000

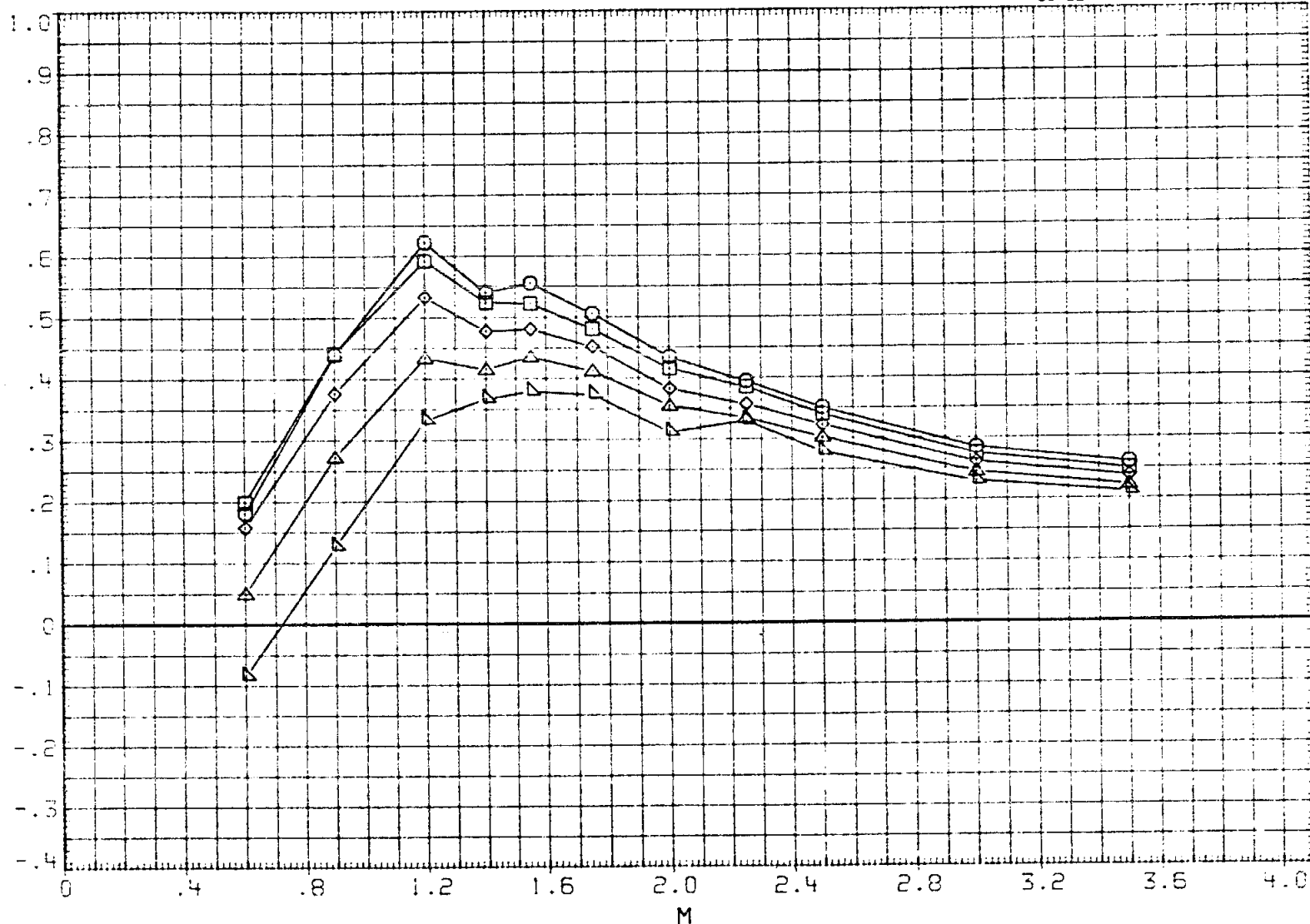


FIG. 16 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P / QIJ RIGHT RAKE

FE7007

SYM 2

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

ALPHA

PARAMETRIC VALUES

.000	BETA	5.000	ELEVON	.000
6.000	AILERON	.000	BDFLAP	-7.170
12.000				
18.000				
24.000				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PTI-PSJ ) , DPQ44444444

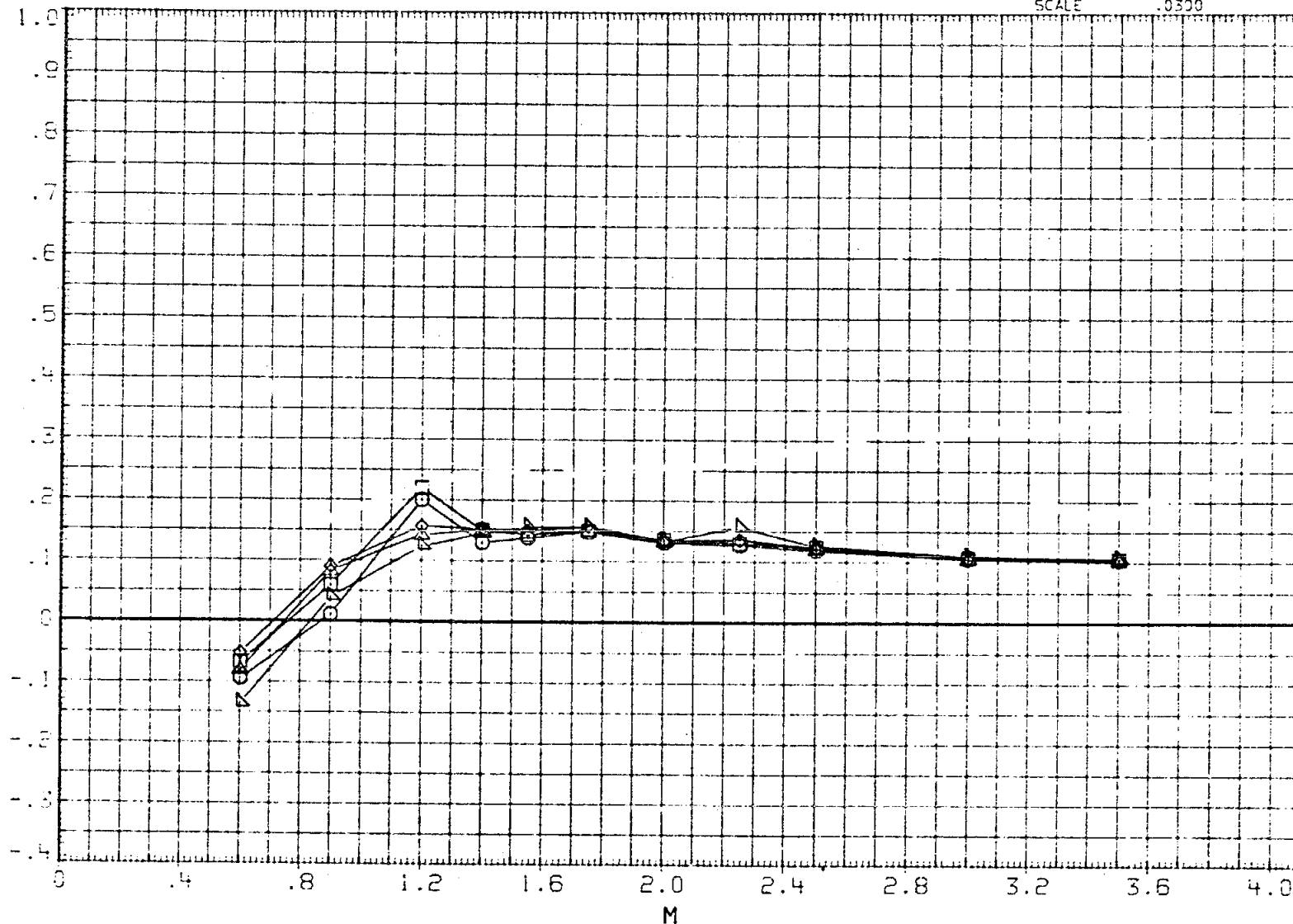


FIG. 16 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P /Q1J RIGHT RAKE

PARAMETRIC VALUES			
ALPHA	BETA	ELEVON	BDFLAP
.000	5.000	.000	-7.170
6.000	.000		
12.000			
18.000			
24.000			

REFERENCE INFORMATION		
SREF	2690.0000	IN. FT.
LREF	474.8000	IN.
BREF	938.0800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PTI - PSJ ) , DP054

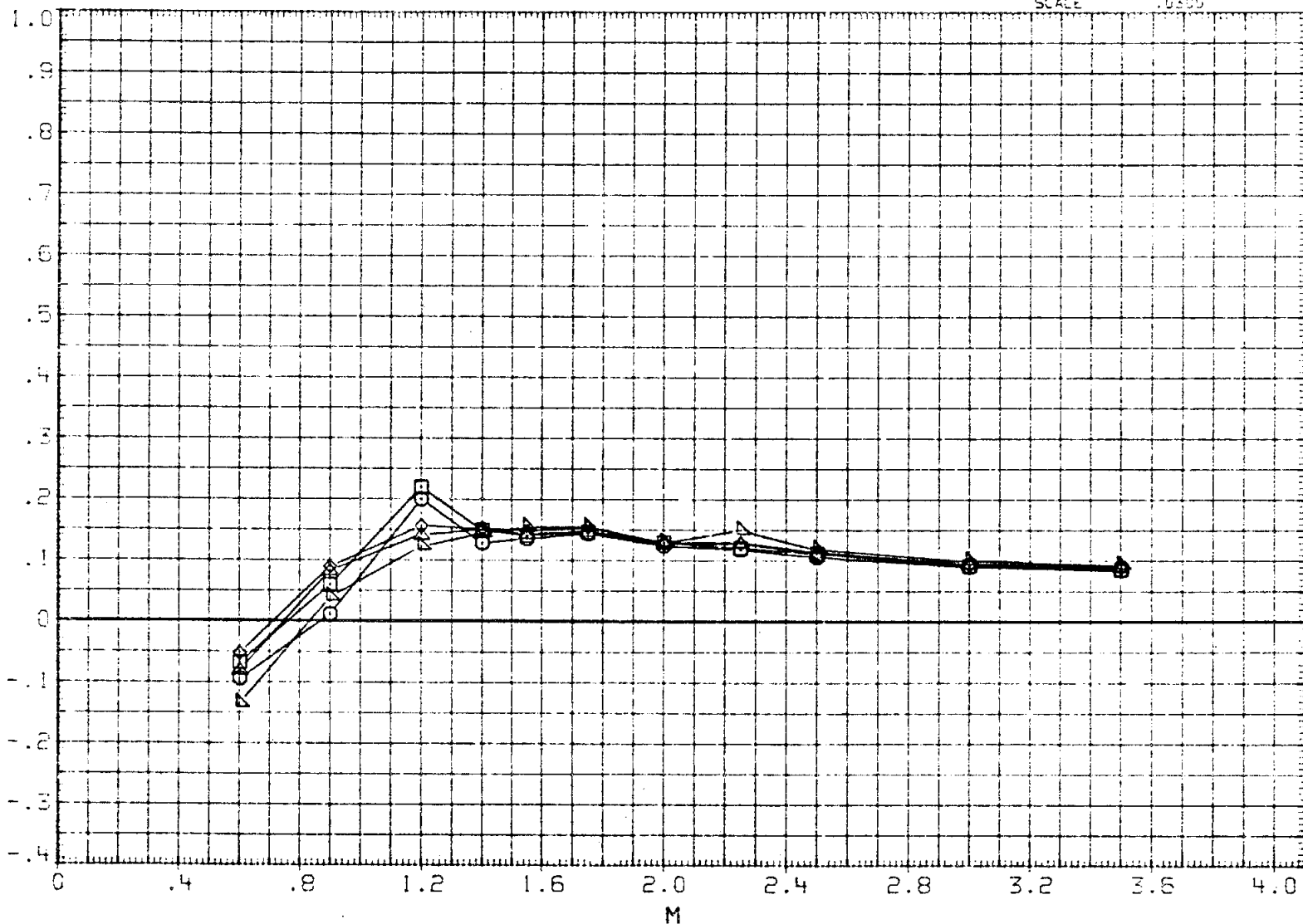


FIG. 16 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P / QIJ RIGHT RAKE

FE7007  
SYMBOL

STATIC PRESSURE DECREMENT ( PSJ - P ) / ( PTI-PSJ ) , DPQ64

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES  
PARAMETRIC VALUES  
ALPHA .000 BETA 5.000 ELEVON .000  
6.000 AILRON .000 BDFLAP -7.170  
12.000  
18.000  
24.000

REFERENCE INFORMATION  
SREF 2530.0000 50.FT.  
LREF 474.8000 IN.  
BREF 935.6800 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

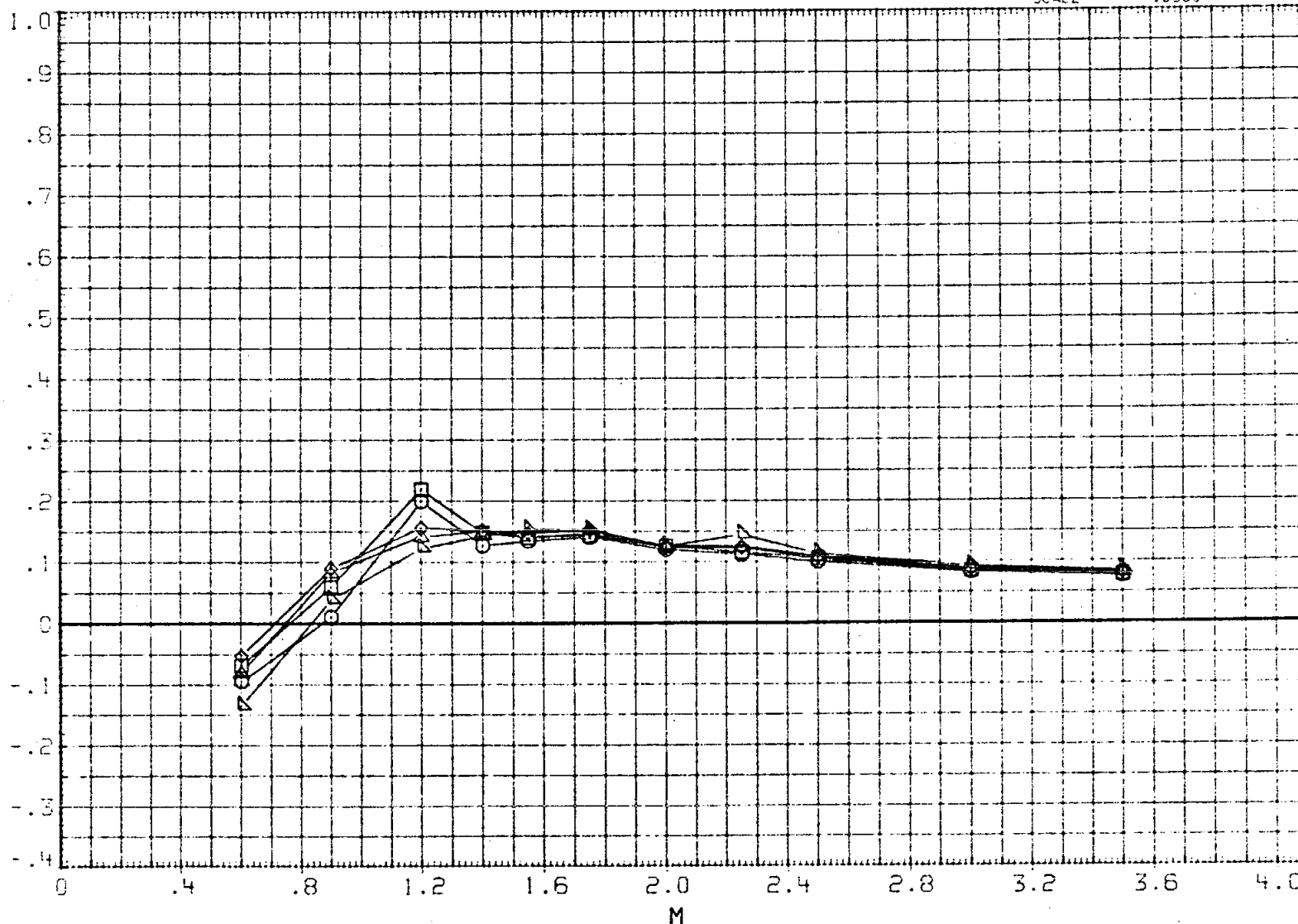


FIG. 16 EFFECT OF ALPHA ON STATIC P. DECREMENT PSJ-P /Q1J RIGHT RAKE

BE7503 CONFIGURATION AND 11-97-87-094 OAT161 ORBITER - RAKES  
 SYMBOL ALPHA PARAMETRIC VALUES  
 .000 BETA -5.000 ELEVON .000  
 12.000 AILRON .000 BOFLAP -7.170  
 24.000

REFERENCE INFORMATION  
 SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 DREF 936.6000 IN.  
 XMRP 1076.6600 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE .0300

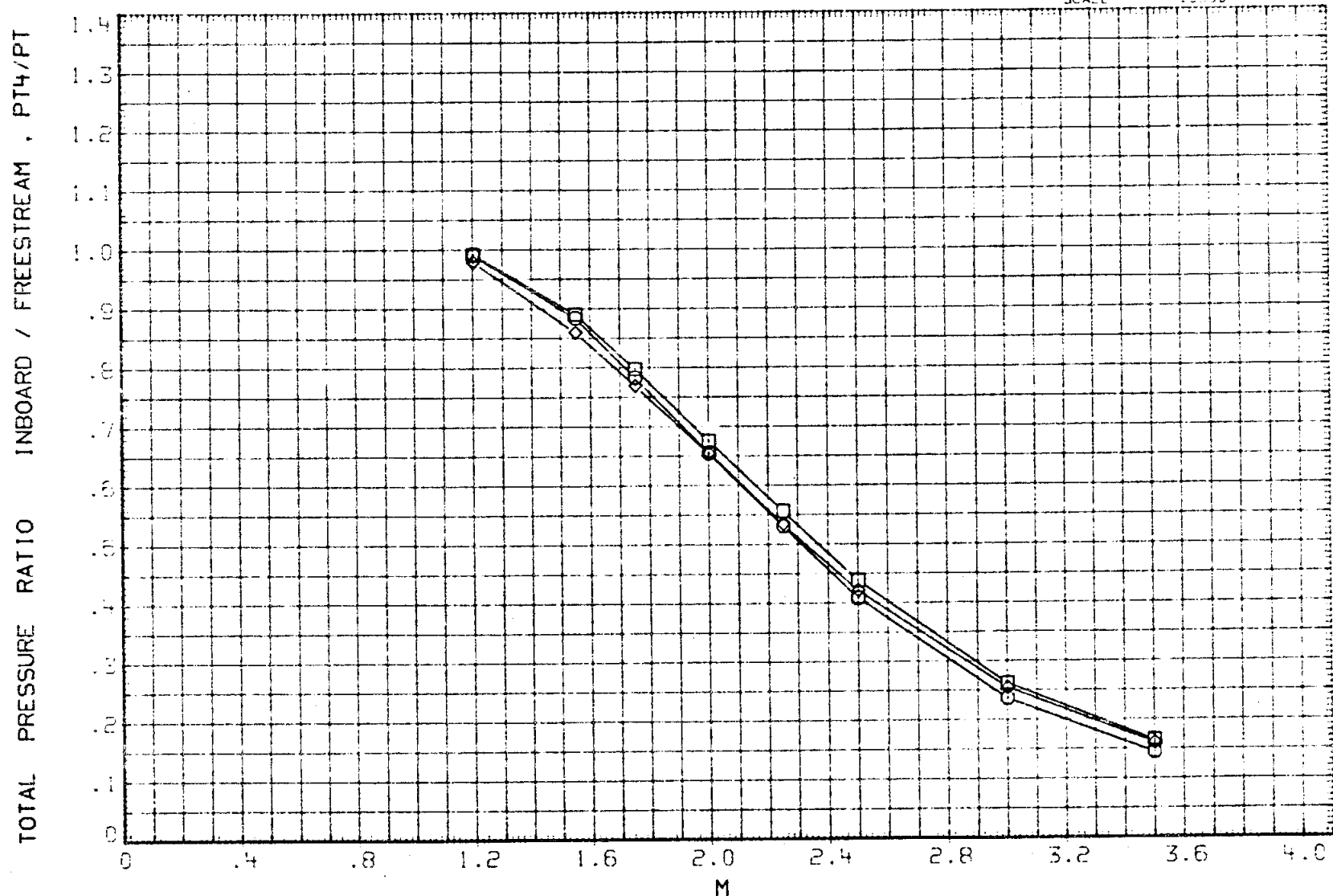


FIG. 17 EFFECT OF ALPHA ON TOTAL PRESSURE RATIO PTI/PT RIGHT RAKE

BT 803  
 SY 803  
 0000  
 0000

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES  
 ALPHA  
 .000 BETA -5.000 ELEVON .000  
 12.000 AILRON .000 BOFLAP -7.170  
 24.000

REFERENCE INFORMATION  
 SPEF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6900 IN.  
 XMPP 1076.6900 IN. XO  
 YMPP .0000 IN. YO  
 ZMPP 375.0000 IN. ZO  
 SCALE .0330

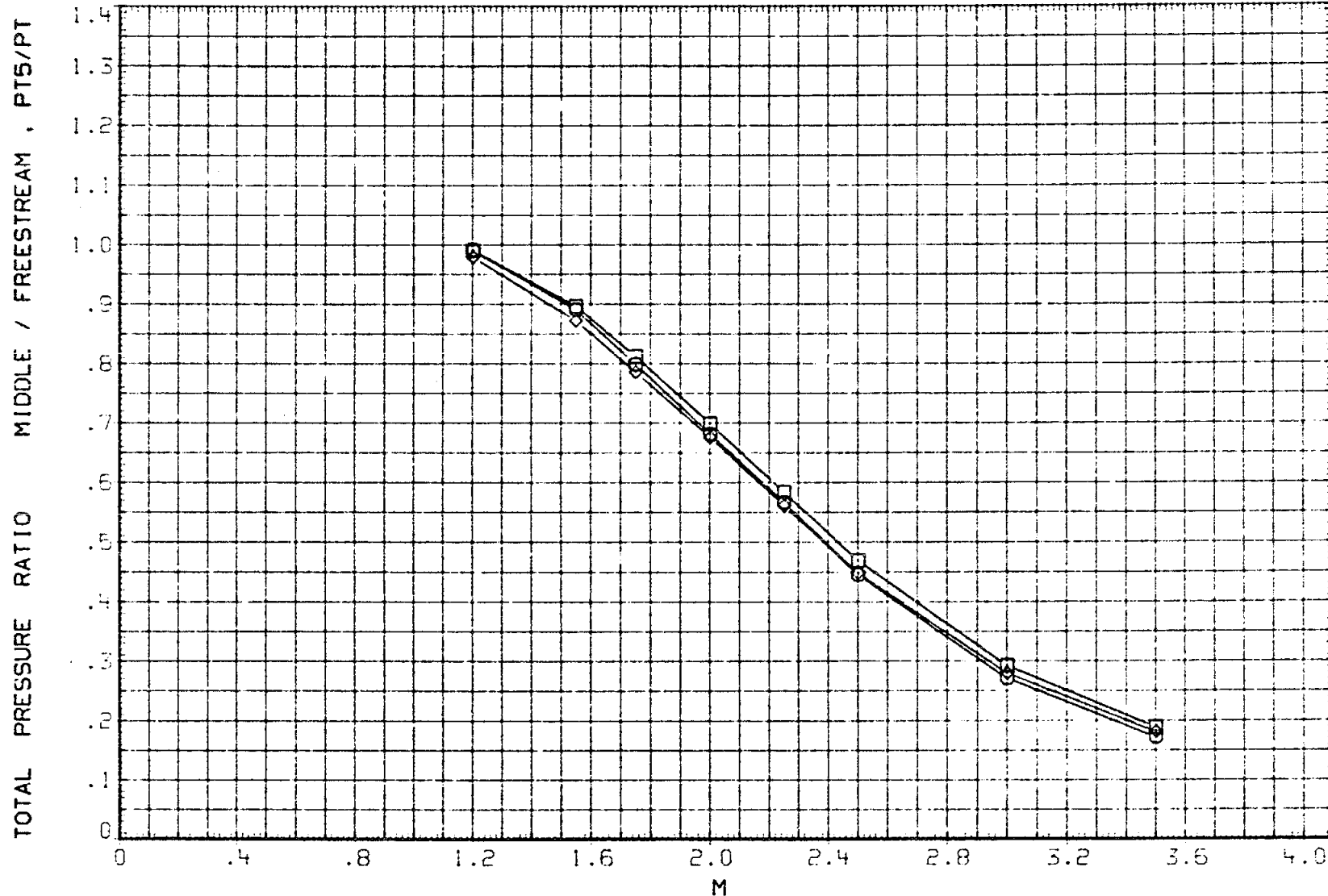


FIG. 17 EFFECT OF ALPHA ON TOTAL PRESSURE RATIO PT1/PT RIGHT RAKE

BET803

CONFIGURATION ARC 11-97-87-094 OA161 OPBITER + RAKES

SYMBOL

ALPHA

PARAMETRIC VALUES

.000

BETA

-5.000

ELEVON

.000

12.000

AILRON

.000

BOFLAP

-7.170

24.000

REFERENCE INFORMATION

SPET	2690.0000	SQ. FT.
LREF	474.8500	IN.
SPET	935.6800	IN.
VMOP	1076.6800	IN. YO
VMOP	.0000	IN. YO
ZMAP	375.0000	IN. ZO
SCALE	.0000	

TOTAL PRESSURE RATIO OUTBOARD / FREESTREAM , PT6/PT

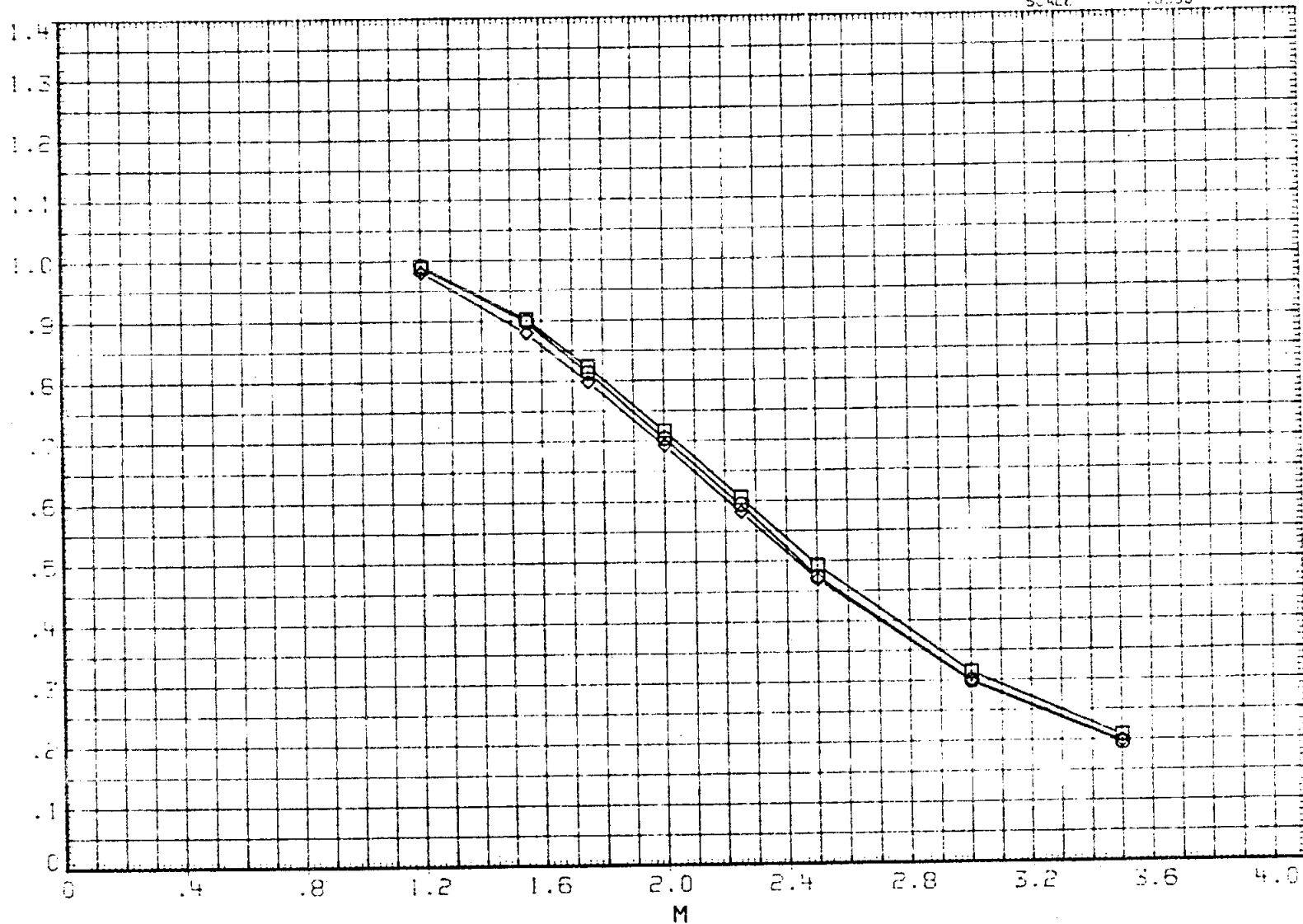


FIG. 17 EFFECT OF ALPHA ON TOTAL PRESSURE RATIO PT1/PT RIGHT RAKE



BE7805 CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES  
 SYMBOL ALPHA PARAMETRIC VALUES  
 .000 BETA .000 ELEVON .000  
 12.000 AILRON .000 BOFLAP -7.170  
 24.000

REFERENCE INFORMATION  
 SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

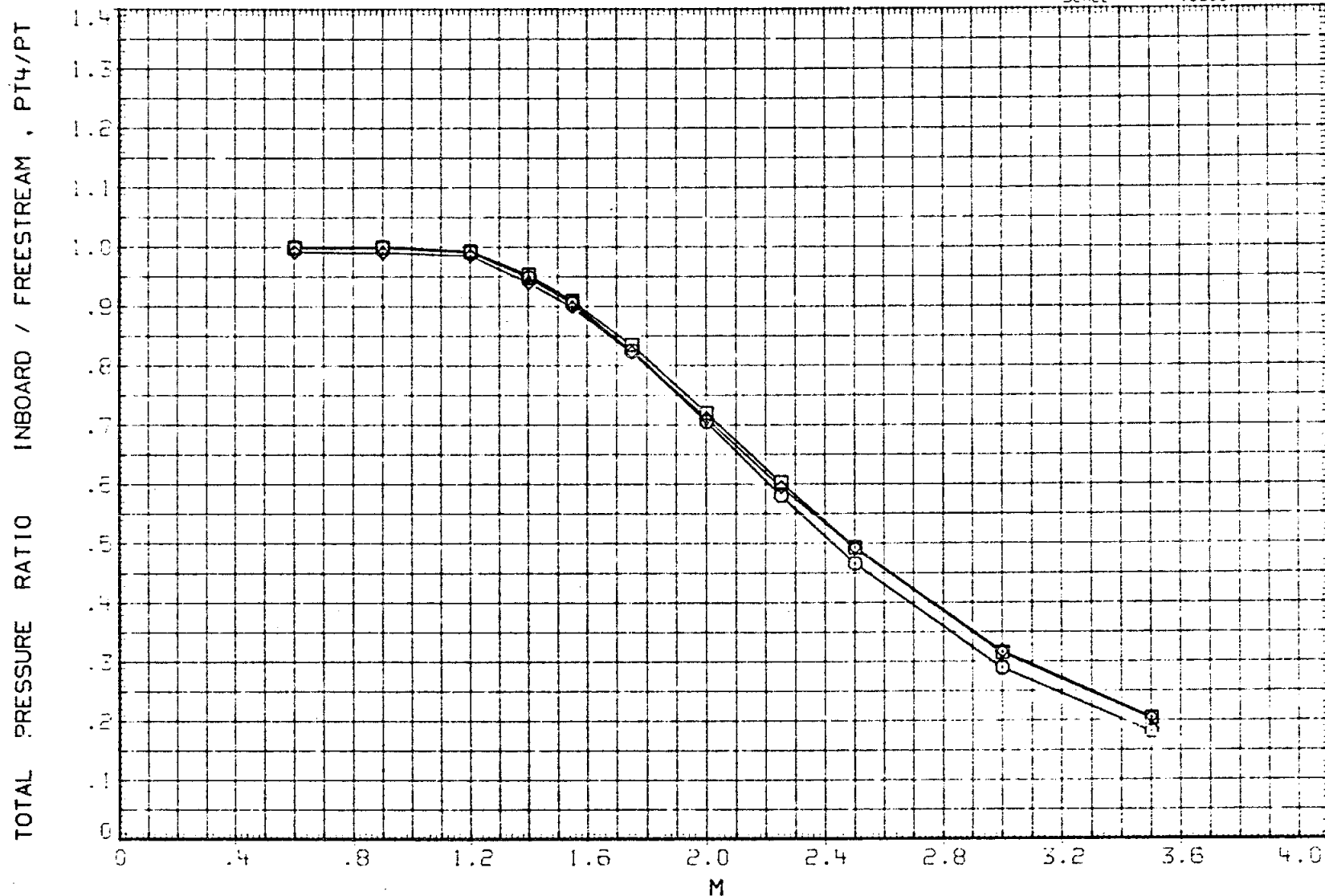


FIG. 17 EFFECT OF ALPHA ON TOTAL PRESSURE RATIO PT1/PT RIGHT RAKE

BET605 CONFIGURATION ARC 11-97-87-094 CA161 ORBITER - RAKES  
 SYMBOL ALPHA PARAMETRIC VALUES  
 .000 BETA .000 ELEVON .000  
 12.000 AIRLON .000 BOFLAP -7.170  
 20.000

REFERENCE INFORMATION  
 SREF 2890.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 935.6000 IN.  
 XMRP 1076.5800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0000

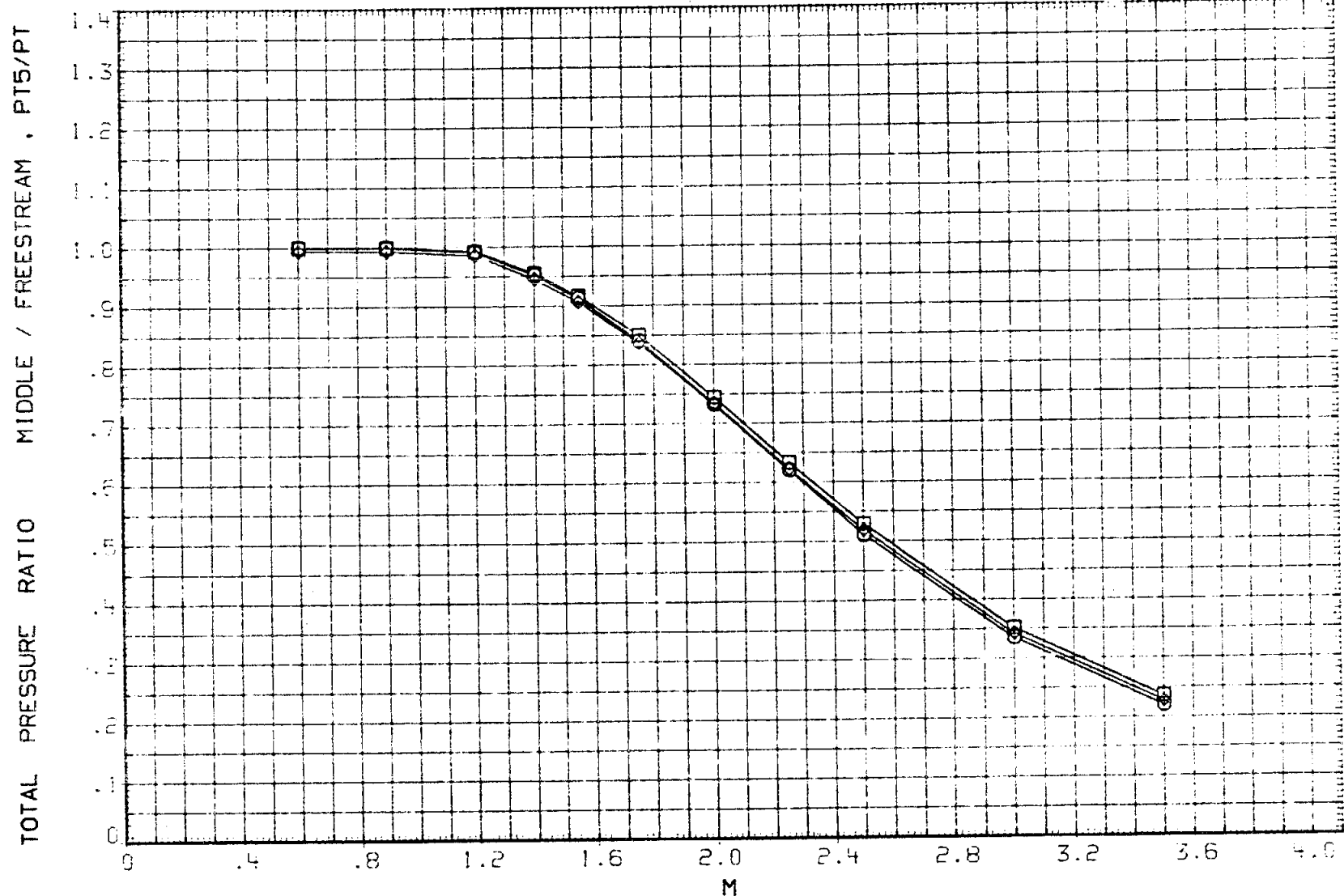


FIG. 17 EFFECT OF ALPHA ON TOTAL PRESSURE RATIO PT1/PT RIGHT RAKE

BET805 CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

SYMBOL

◇ □ ○

ALPHA

.000  
12.000  
24.000

BETA  
AILRON

PARAMETRIC VALUES

.000  
.000

ELEVON  
BDFLAP

.000  
-7.170

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
XMFP	1076.6800	IN. X0
YMFP	.0000	IN. Y0
ZMFP	375.0000	IN. Z0
SCALE	.0000	

TOTAL PRESSURE RATIO OUTBOARD / FREESTREAM , PT6/PT

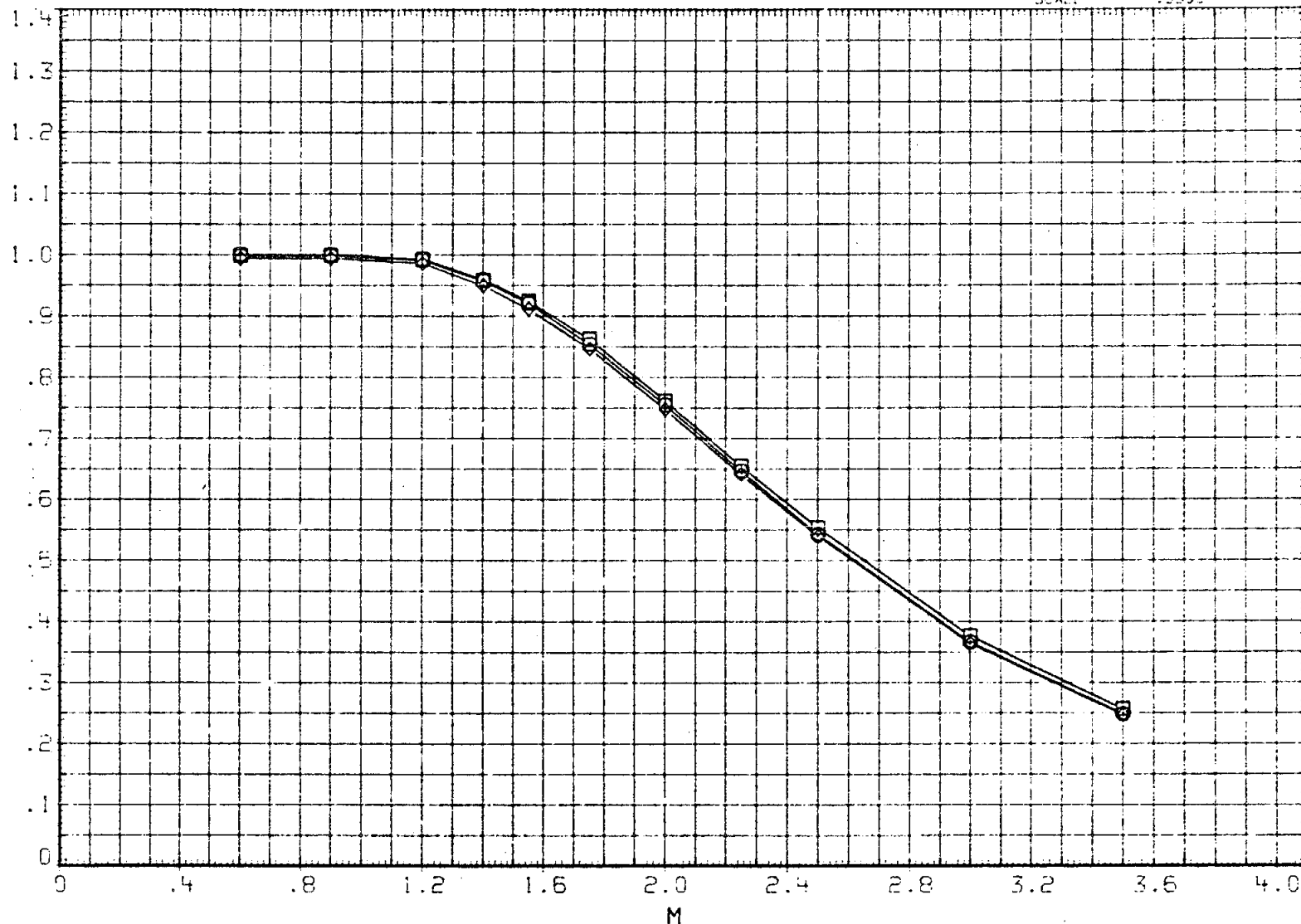


FIG. 17 EFFECT OF ALPHA ON TOTAL PRESSURE RATIO PTI/PT RIGHT RAKE

B07B07 CONFIGURATION ARC 11-97-87-094 0A161 ORBITER + RAKES  
 SYMBOL ALPHA PARAMETRIC VALUES  
 1.000 BETA 5.000 ELEVON .000  
 12.000 AILRON .000 BDFLAP -7.170  
 20.000

REFERENCE INFORMATION  
 SREF 2690.0000 50. FT.  
 LREF 474.8000 IN.  
 BREF 936.6900 IN.  
 XMRP 1076.6900 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE .0300

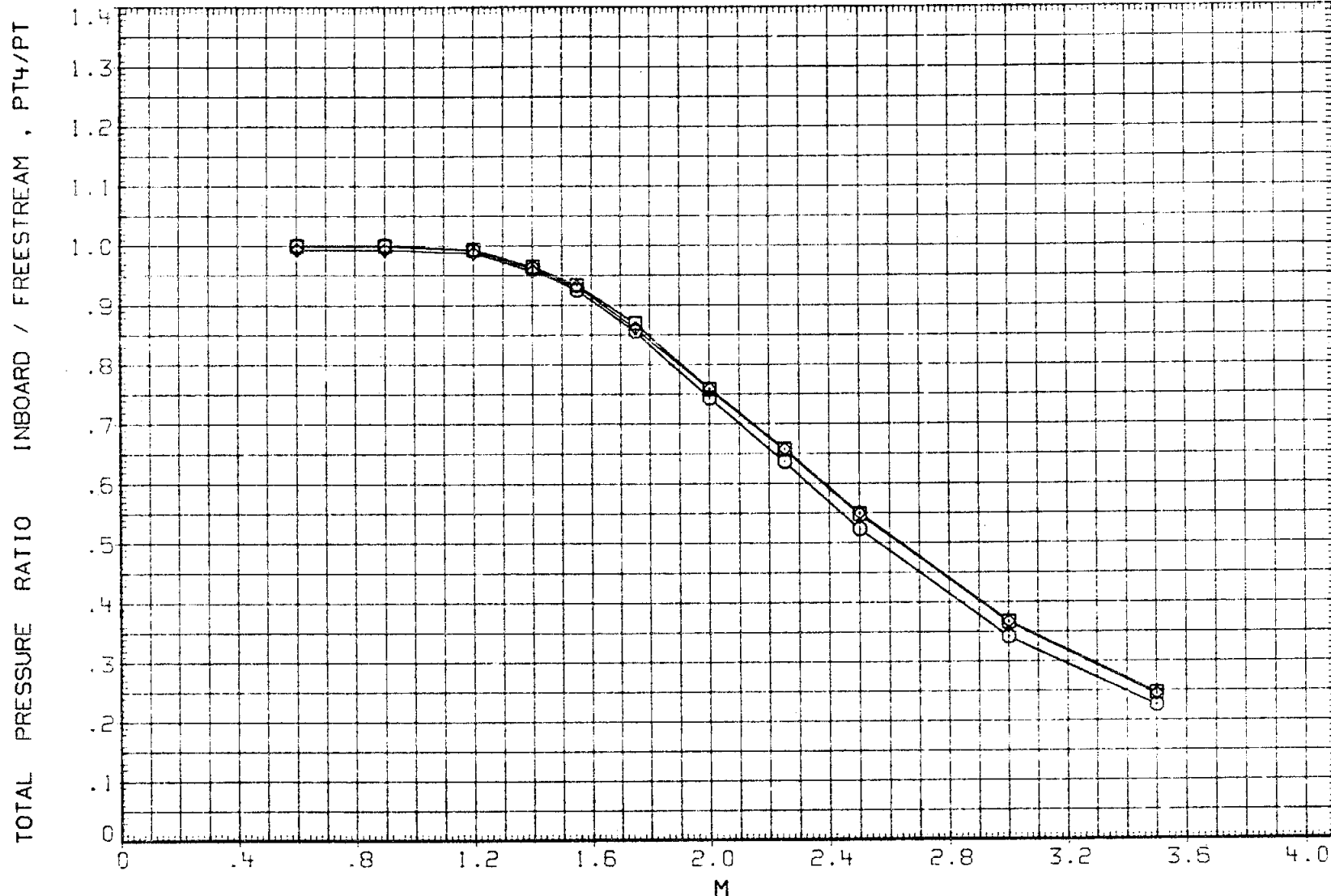


FIG. 17 EFFECT OF ALPHA ON TOTAL PRESSURE RATIO PTI/PT RIGHT RAKE

BE7807  
SYMBOL

◇◇◇

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES

PARAMETRIC VALUES			
ALPHA	BETA	5.000	ELEVON
.000	AILRON	.000	BDFLAP
12.000			-7.170
24.000			

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
XMPP	1075.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

DA  
E  
E  
E

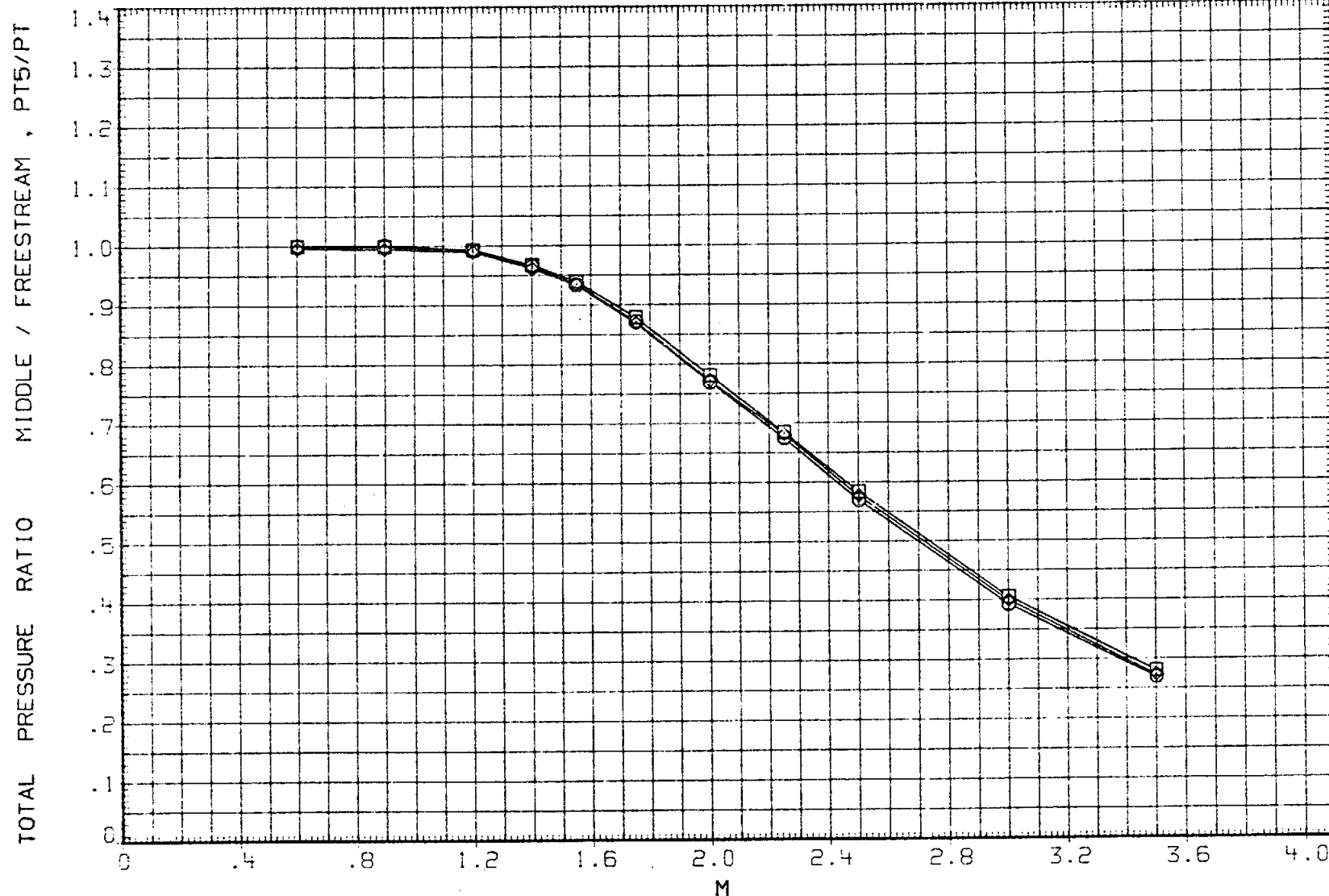


FIG. 17 EFFECT OF ALPHA ON TOTAL PRESSURE RATIO PTI/PT RIGHT RAKE

BET807  
SYMBOL

CONFIGURATION ARC 11-97-87-094 OA161 ORBITER + RAKES  
PARAMETRIC VALUES  
ALPHA .000 BETA 5.000 ELEVON .000  
12.000 AILERON .000 BOFLAP -7.170  
24.000

REFERENCE INFORMATION  
SREF 2690.0000 50.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
YMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

TOTAL PRESSURE RATIO OUTBOARD / FREESTREAM , PTI/PT

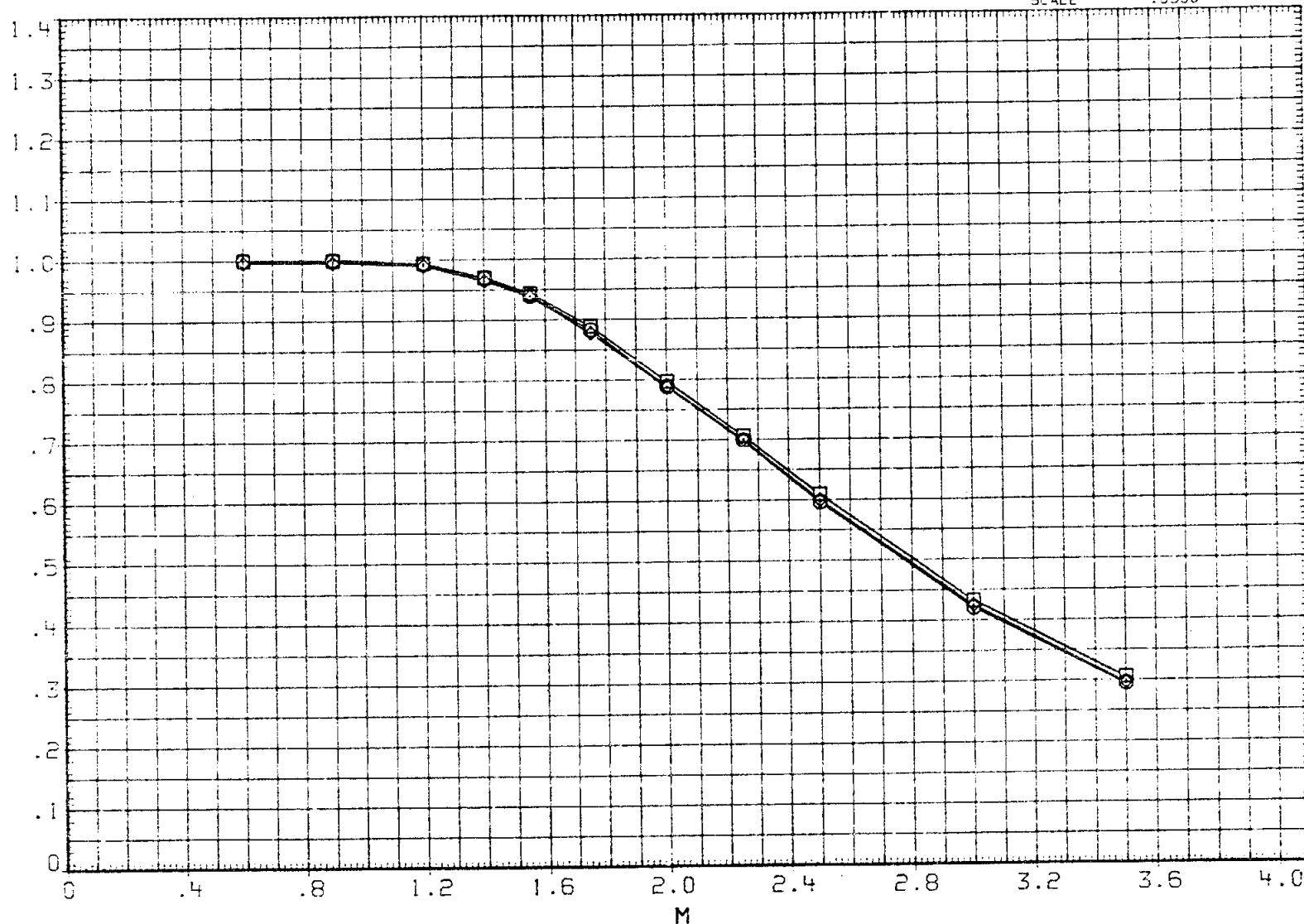


FIG. 17 EFFECT OF ALPHA ON TOTAL PRESSURE RATIO PTI/PT RIGHT RAKE

DATA SET	SYMBOL	CONFIGURATION
EE7X03	○	ARC 11-97-87-094 OA161 ORBITER + RAKES
EE7X05	□	ARC 11-97-87-094 OA161 ORBITER + RAKES
EE7X07	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES
EE7X01	△	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES

BETA	ELEVON	AILRON	BDFLAP
-5.000	.000	.000	-7.170
.000	.000	.000	-7.170
5.000	.000	.000	-7.170
.000	.000	.000	-7.170

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0500	

DA  
E  
E  
E  
E



FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

(A) ALPHA = .00

ATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILERON	BOFLAP	REFERENCE INFORMATION		
EE7X03	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2893.9000	50. FT.
EE7X05	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
EE7X07	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6000	IN.
EE7X01	△	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000			-7.170	XMRP	1076.6000	IN. X0
							YMRP	.0000	IN. Y0
							ZMRP	375.0000	IN. Z0
							SCALE	.0300	

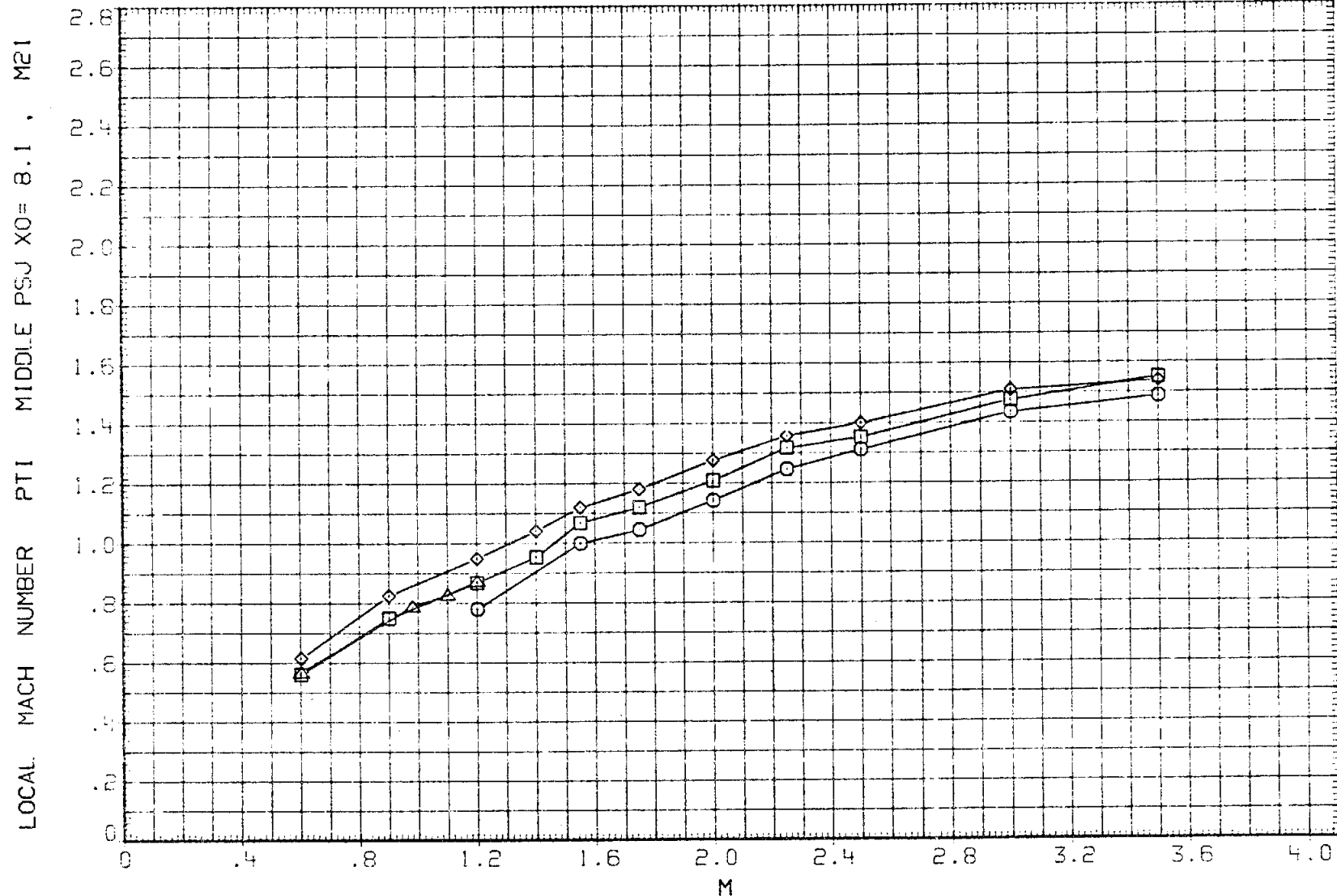


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

(A) ALPHA = .00



ATA SET	SYMBOL	CONFIGURATION
EE7X03	○	ARC 11-97-87-09+ 0A161 ORBITER + RAKES
EE7X05	□	ARC 11-97-87-09+ 0A161 ORBITER + RAKES
EE7X07	◇	ARC 11-97-87-09+ 0A161 ORBITER + RAKES
EE7X01	△	ARC 11-97-87-09+ 0A161 ORBITER - WING + RAKES

BETA	ELEVON	AILRON	BDFLAP
-5.000	.000	.000	-7.170
.000	.000	.000	-7.170
5.000	.000	.000	-7.170
.000			

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

DATA  
EE  
EE  
EE  
EE

LOCAL MACH NUMBER PTI INBOARD PSJ XO= 8.1 , M31

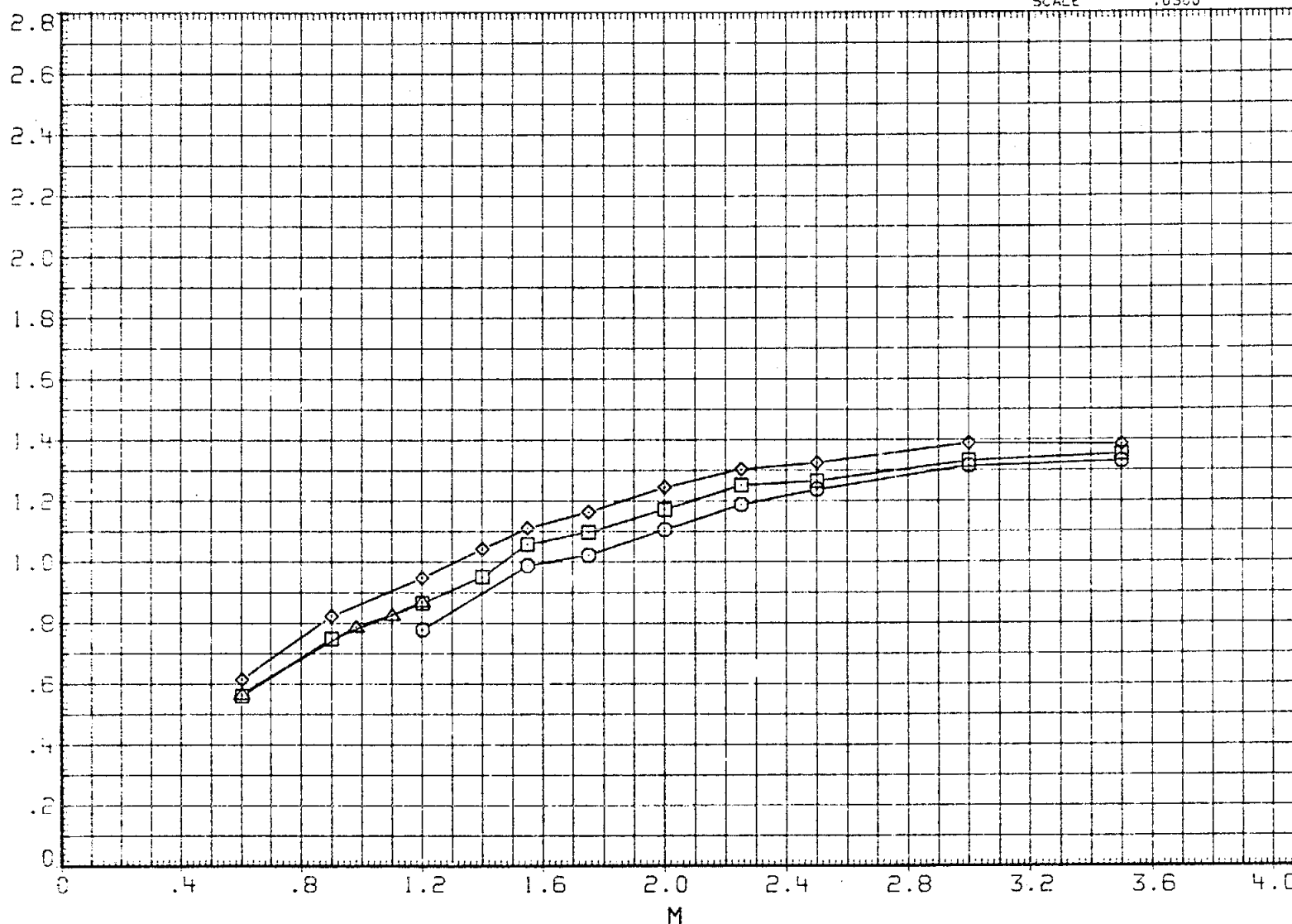


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILERON	BDFLAP	REFERENCE INFORMATION		
007X03	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2680.0000	50. FT.
007X05	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
007X07	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	935.6800	IN.
007X01	△	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000			-7.170	XMPP	1075.6800	IN. XO
							YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0300	

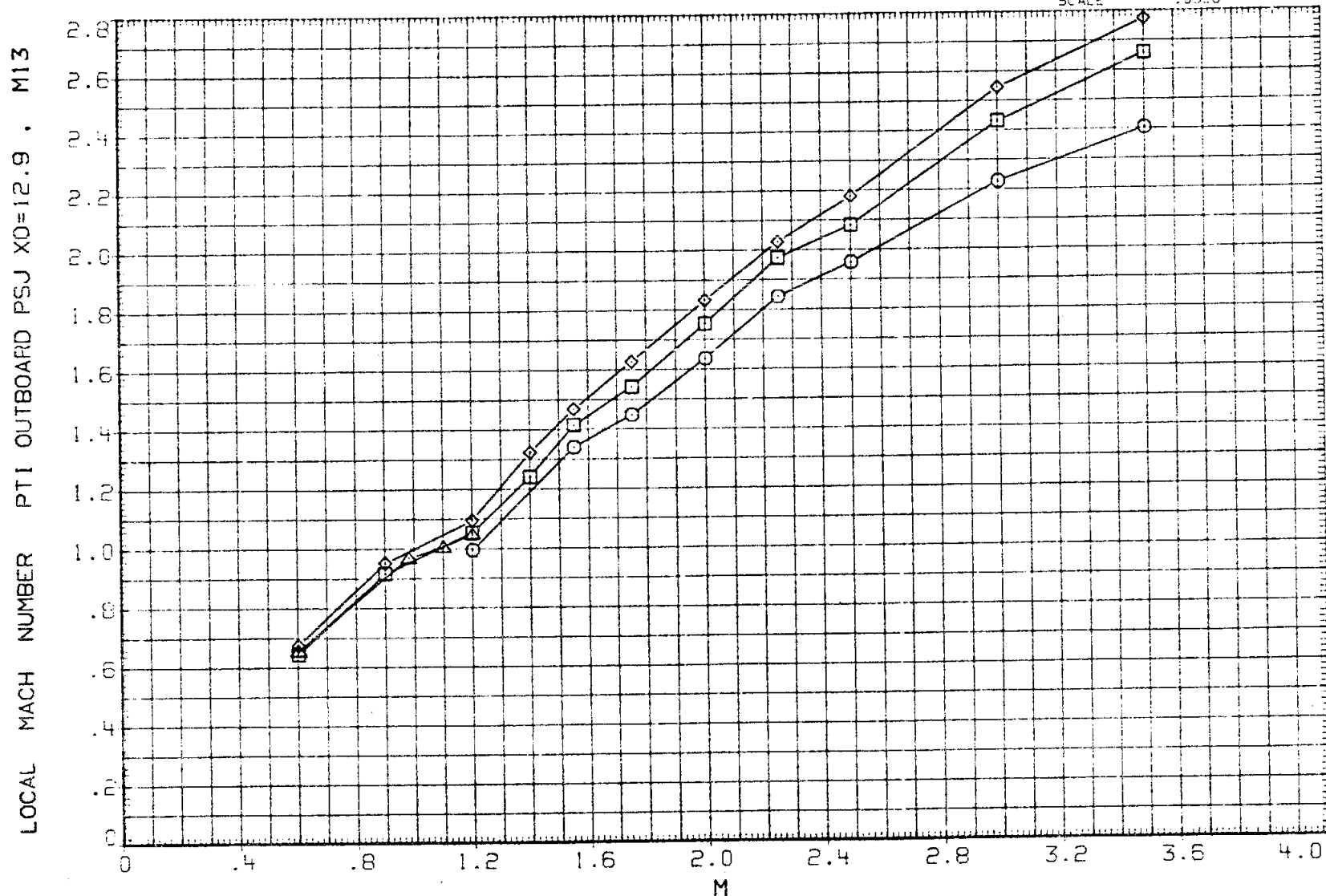


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

(A) ALPHA = .00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
REF X03	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50.FT.
REF X05	□	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
REF X07	△	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6000	IN.
REF X01	◇	ARC 11-97-87-094 0A161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	YMRP	1076.6000	IN. X0
							YMRP	.0000	IN. Y0
							ZMRP	375.0000	IN. Z0
							SCALE	.0300	

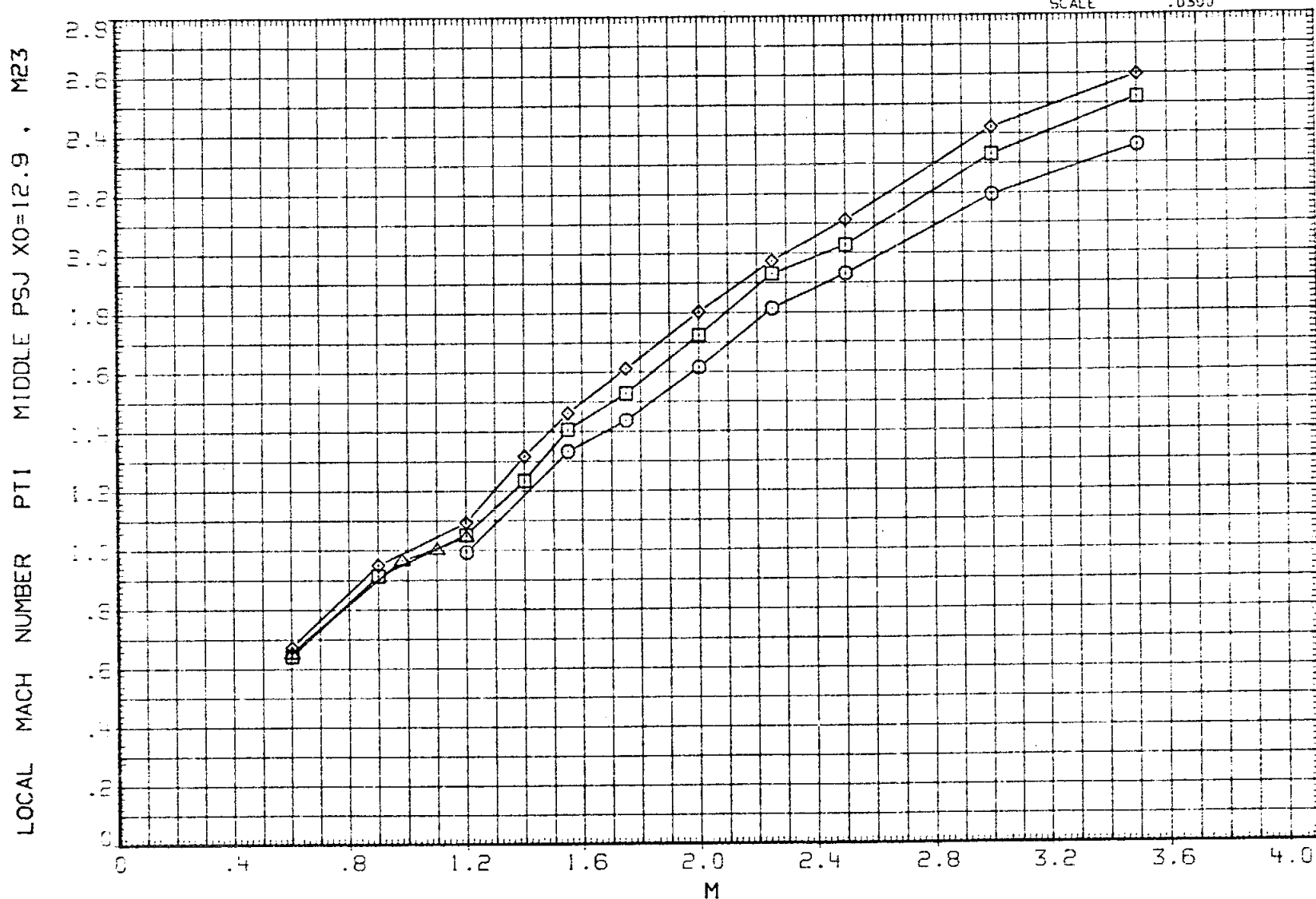


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

(A) ALPHA = .00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BCFLAP	REFERENCE INFORMATION		
001	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50. FT.
002	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LPRT	474.8000	IN.
003	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6600	IN.
004	△	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000				XMPP	1076.6200	IN. XO
							YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0000	

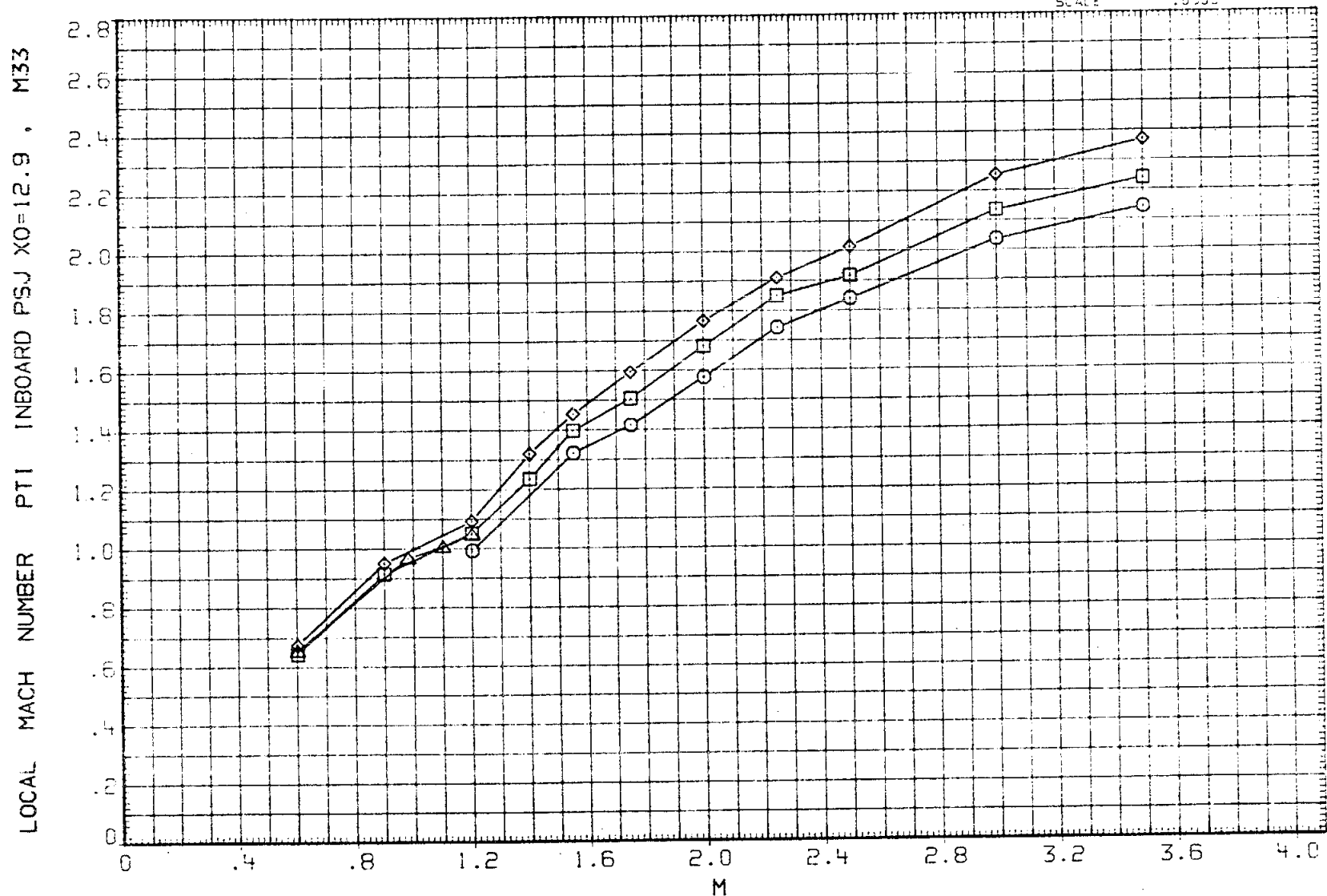


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

(A) ALPHA = .00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
EE7X03	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50.FT.
EE7X05	□	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
EE7X07	◇	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
EE7X01	△	DATA NOT AVAILABLE	.000			-7.170	XMRP	1076.6900	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

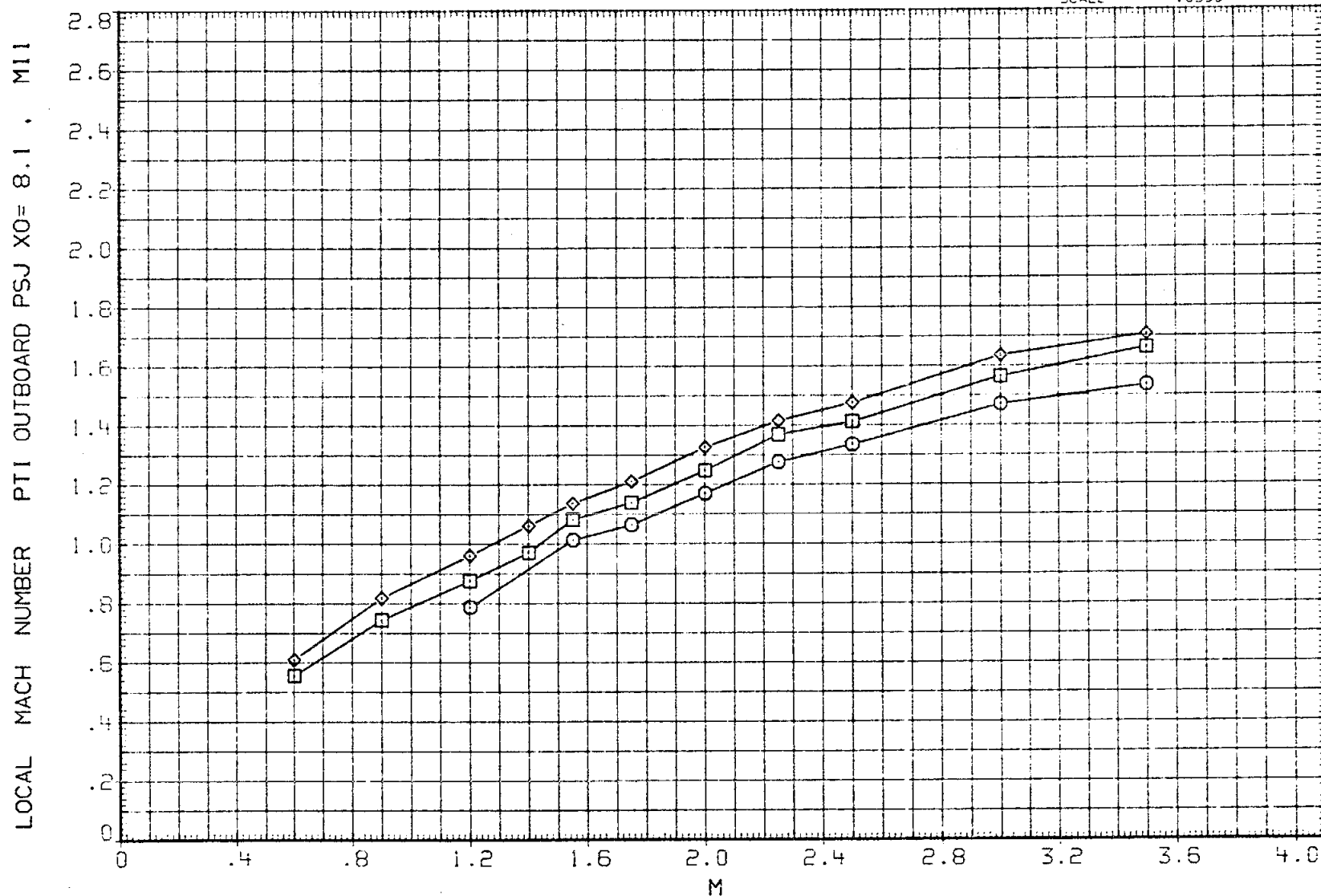


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
EE7X03	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
EE7X05	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
EE7X07	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	336.6800	IN.
EE7Y01	△	DATA NOT AVAILABLE	.000			-7.170	XMRP	1076.6900	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

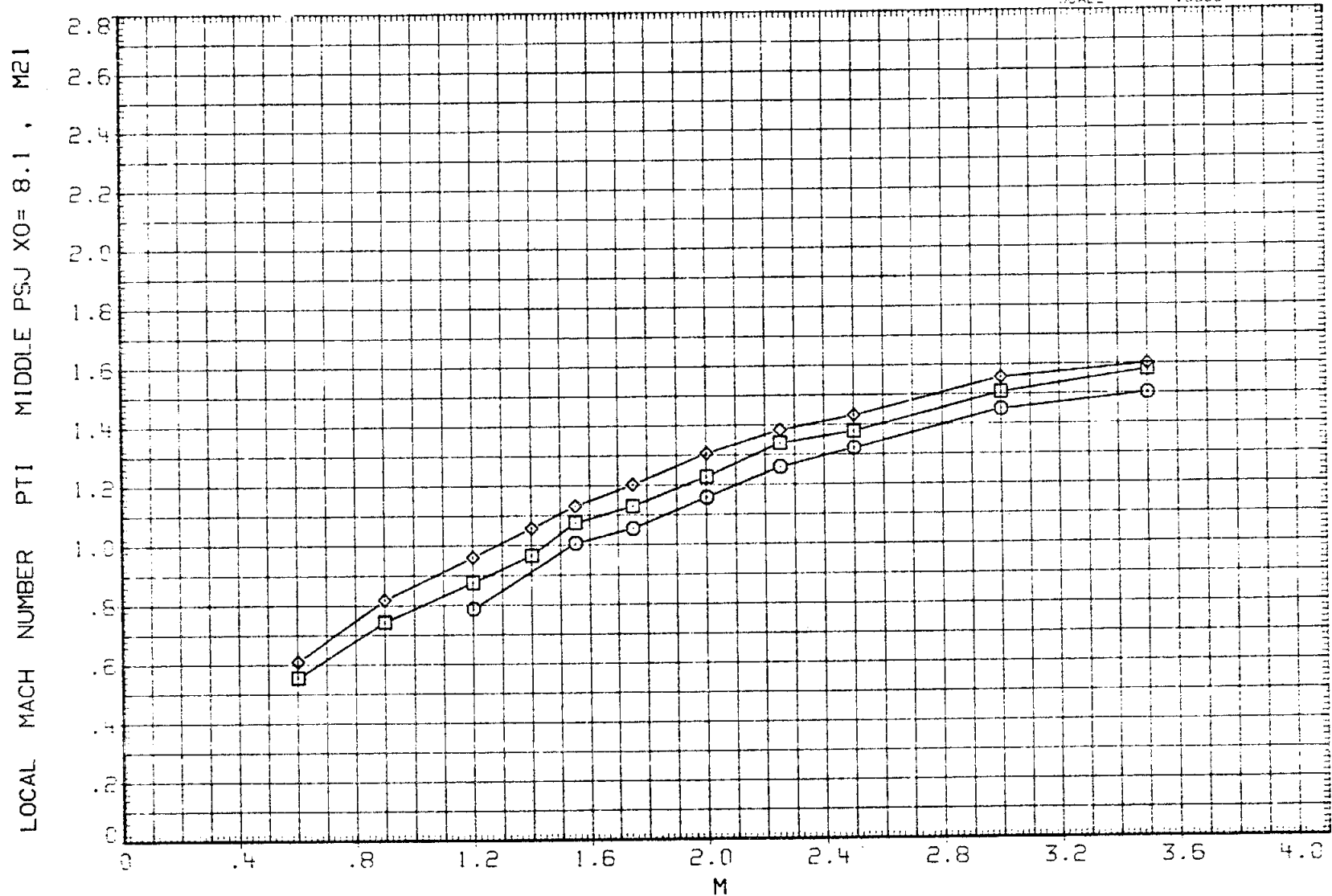


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

(B) ALPHA = 6.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
EE7X03	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
EE7X05	□	ARC 11-97-87-094 OA161 OPBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
EE7X07	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
EE7X01	△	DATA NOT AVAILABLE	.000			-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

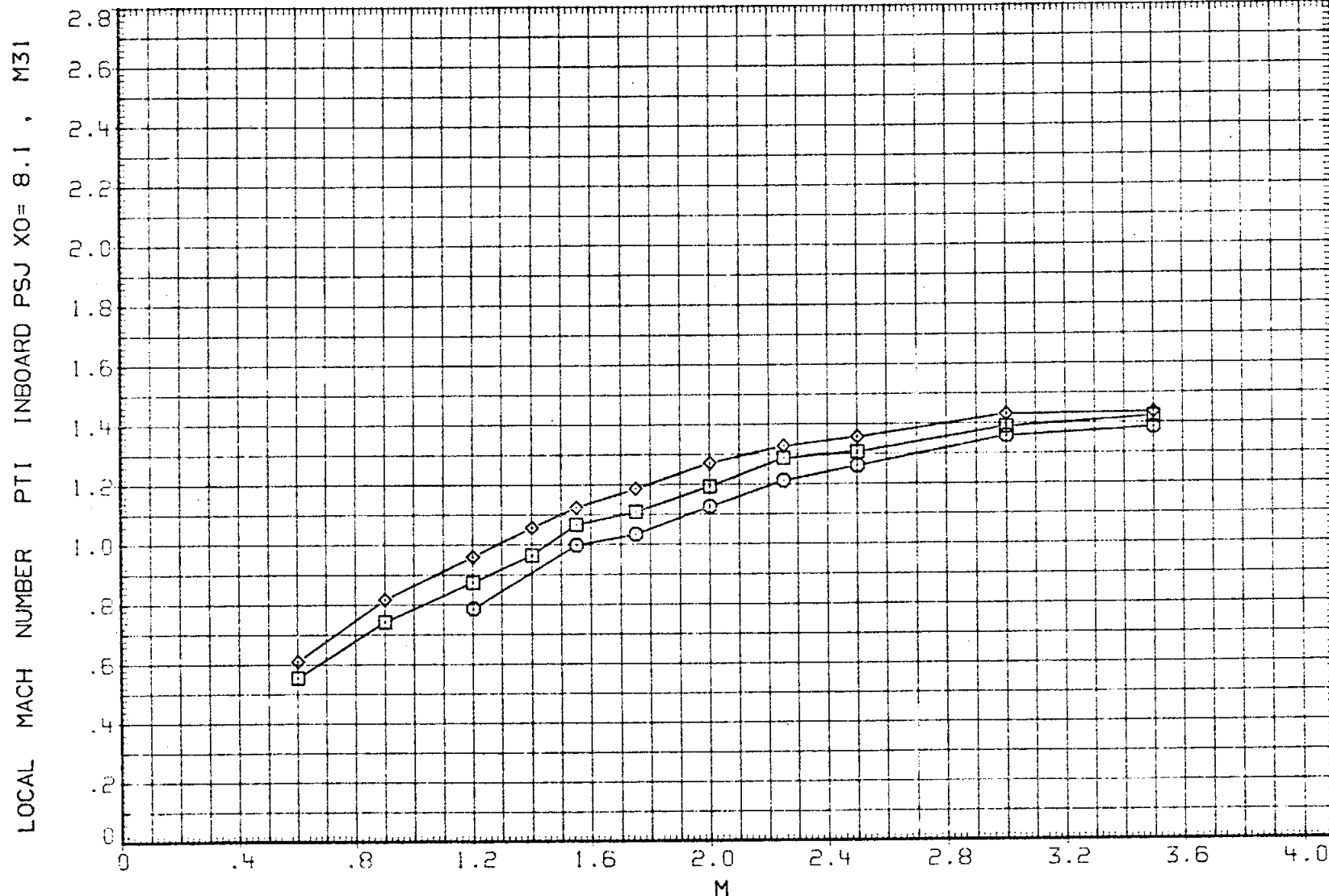


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
EE7X03	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	60.171
EE7X05	□	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
EE7X07	◇	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
EE7X01	△	DATA NOT AVAILABLE	.000			-7.170	XMPP	1076.6800	IN. XO
							YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0000	

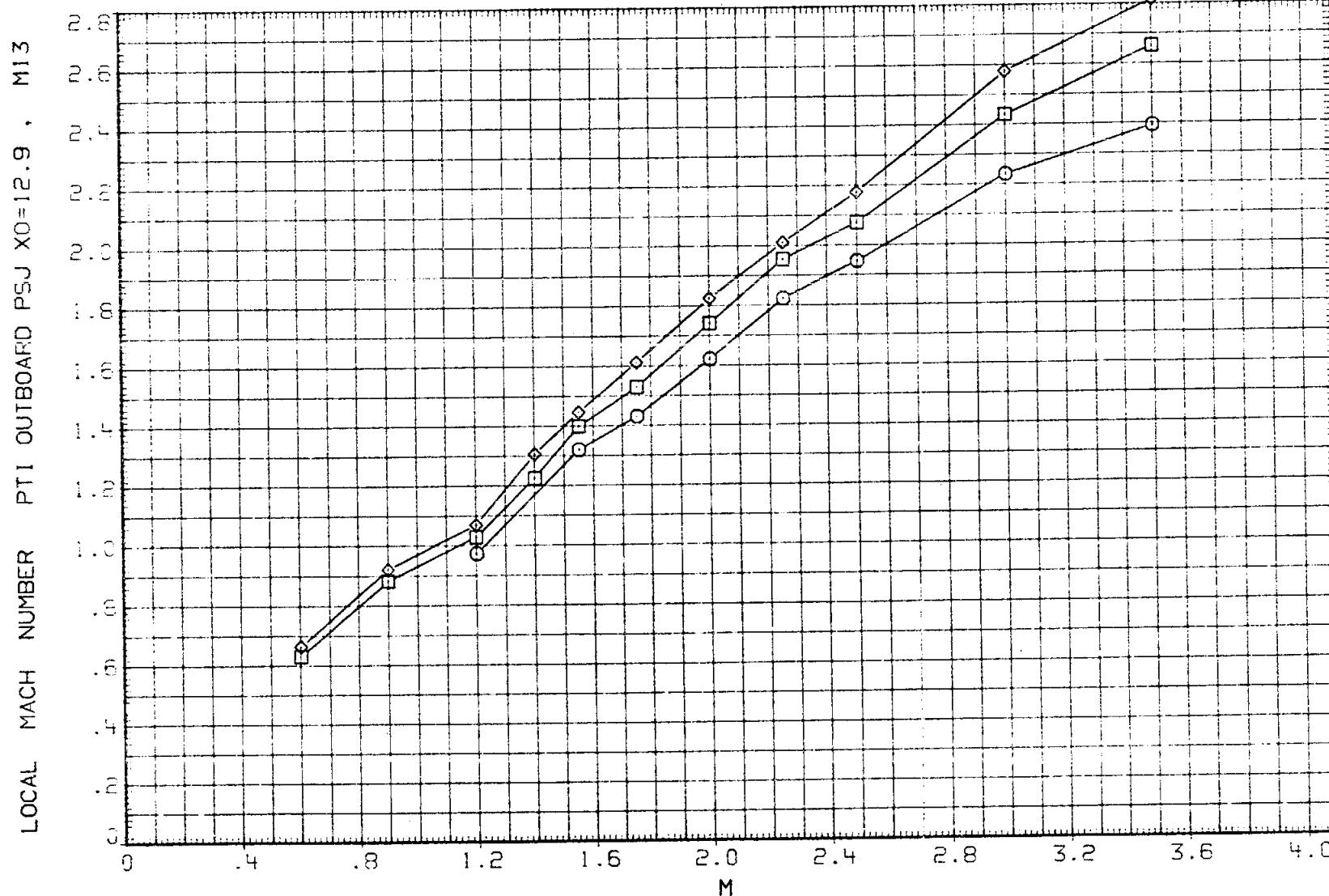


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

(B) ALPHA = 6.00



DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
EE7X03	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50.FT.
EE7X05	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
EE7X07	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
EE7X01	DATA NOT AVAILABLE	.000			-7.170	XMRP	1076.6800	IN. XO
						YMRP	.0000	IN. YO
						ZMRP	375.0000	IN. ZO
						SCALE	.0300	

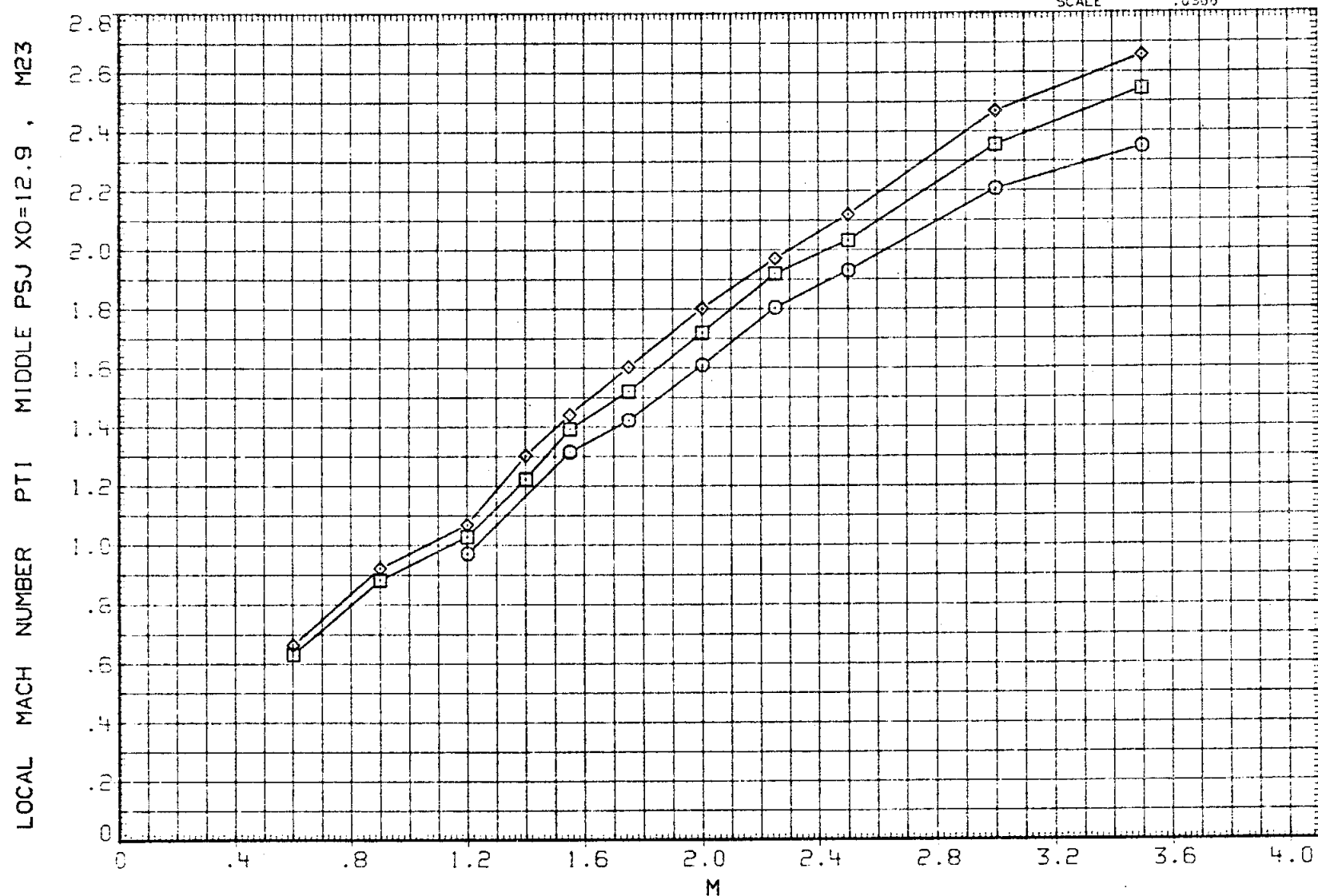


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOPLAP	REFERENCE INFORMATION		
FE7X03	ARC 11-97-87-094 CA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50. FT.
FE7X05	ARC 11-97-87-094 CA161 ORBITER + RAKES	.000	.000	.000	-7.170	LRPF	474.9000	IN.
FE7X07	ARC 11-97-87-094 CA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BRPF	936.6400	IN.
FE7X01	DATA NOT AVAILABLE	.000			-7.170	XMRF	1076.6800	IN. XO
						YMRF	.0000	IN. YO
						ZMRF	575.0000	IN. ZO
						SCALE	.0300	

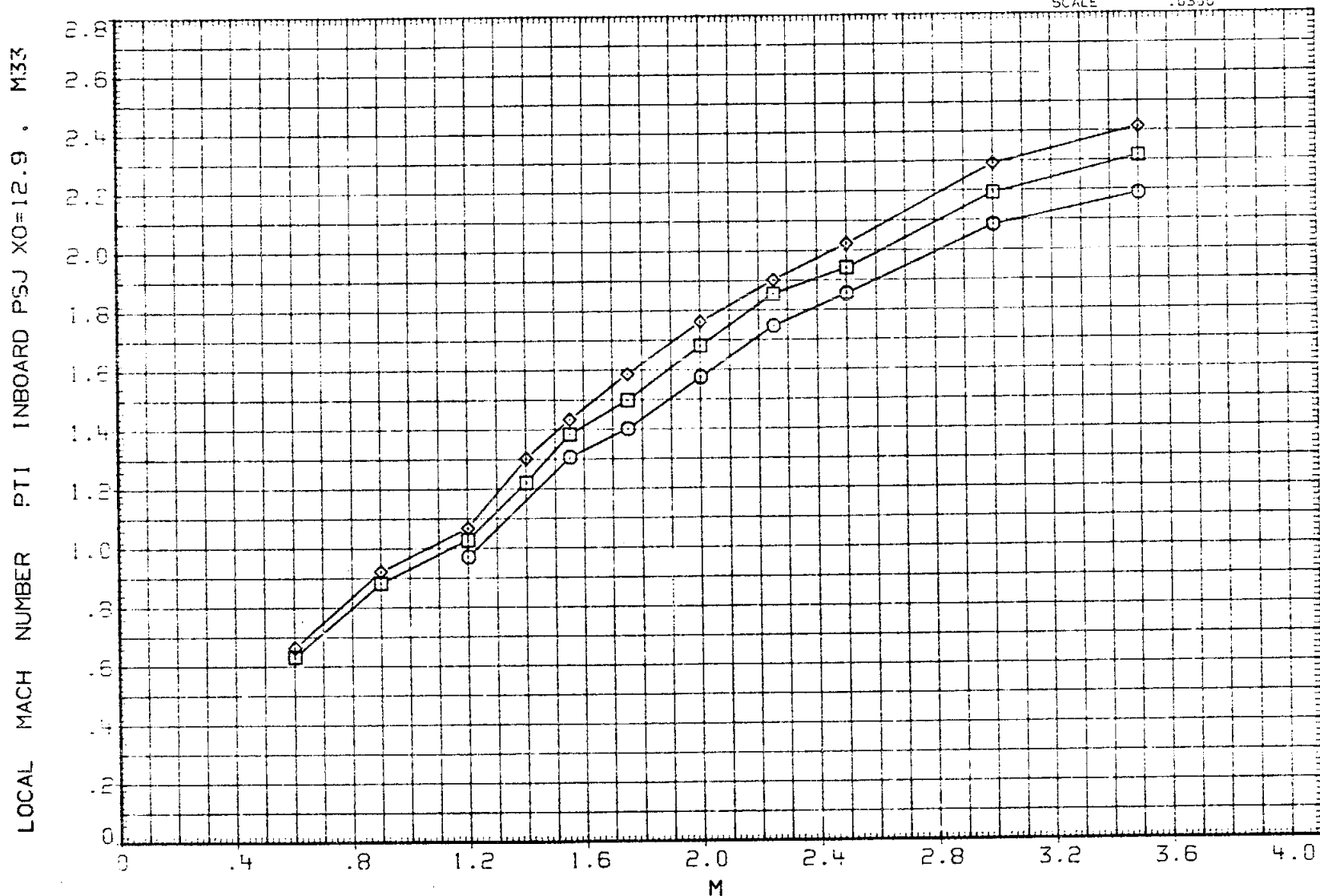


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

(B) ALPHA = 6.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
EE7X03	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
EE7X05	□	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
EE7X07	◇	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	935.6800	IN.
EE7X01	△	ARC 11-97-87-094 0A161 ORBITER - WING + RAKES	.000			-7.170	XMPP	1075.6800	IN. XO
							YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0300	

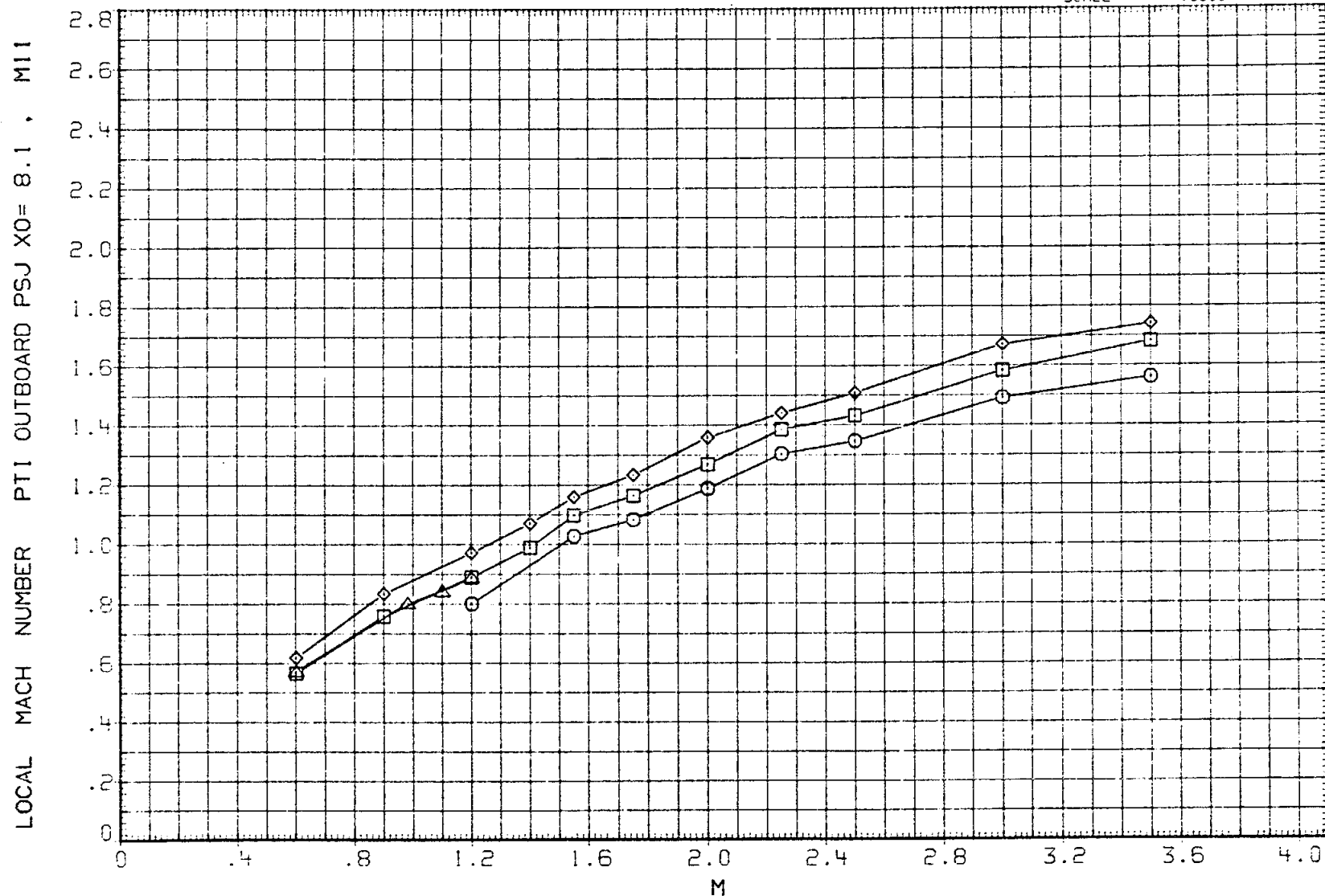


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BEFLAP	REFERENCE INFORMATION		
EE7X03	○	ARC 11-87-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	GREF	2690.0000	SO. FT.
EE7X05	□	ARC 11-87-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	404.8000	IN.
EE7X07	◇	ARC 11-87-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
EE7X01	△	ARC 11-87-87-094 OA161 ORBITER + WING + RAKES	.000	.000	.000	-7.170	XMRF	1076.6800	IN. XO
							YMRF	.0000	IN. YO
							ZMRF	375.0000	IN. ZO
							SCALE	.0300	

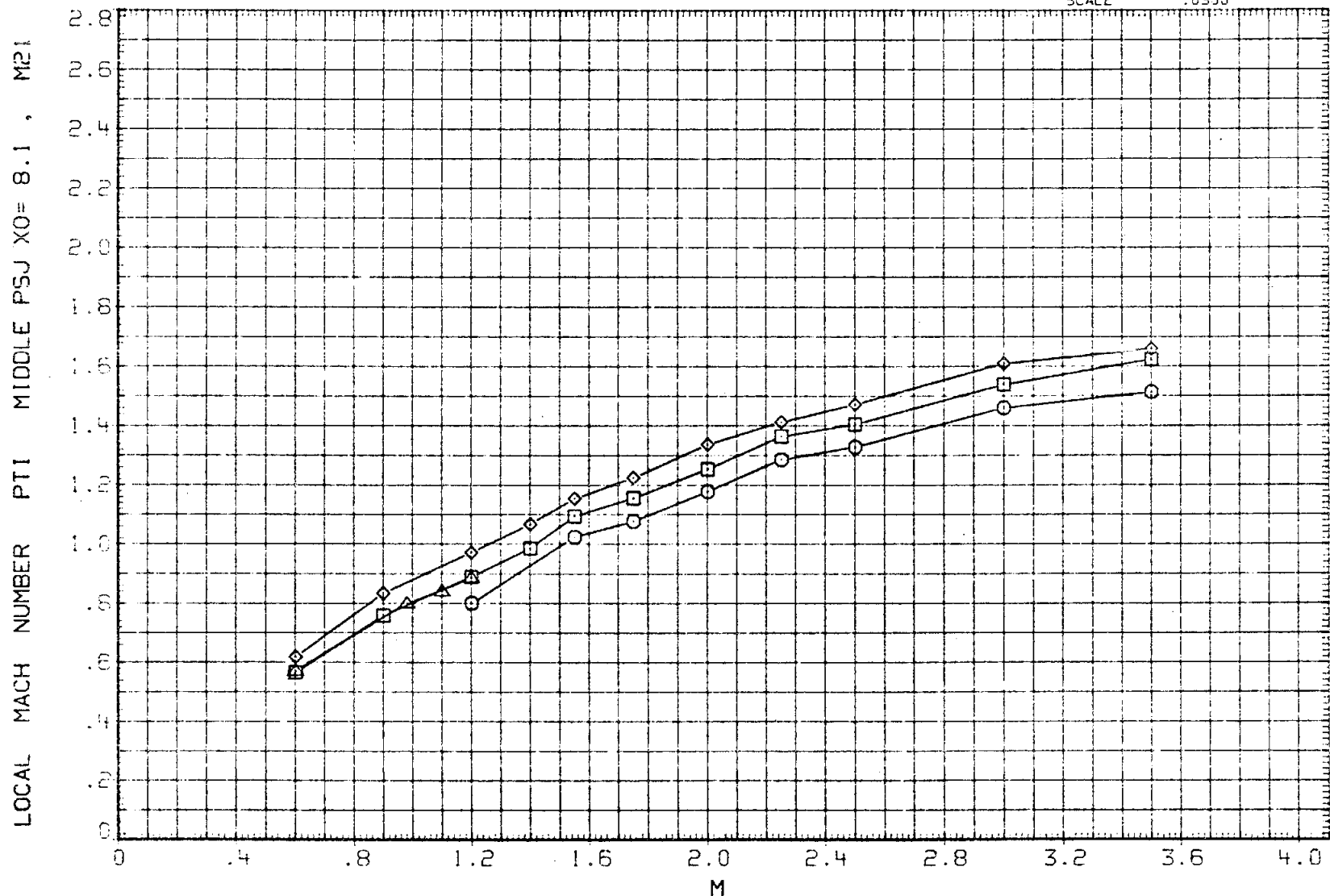


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

(C) ALPHA = 12.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
FE7X03	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
FE7X05	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
FE7X07	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	ØREF	936.6800	IN.
EE7X01	△	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000			-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

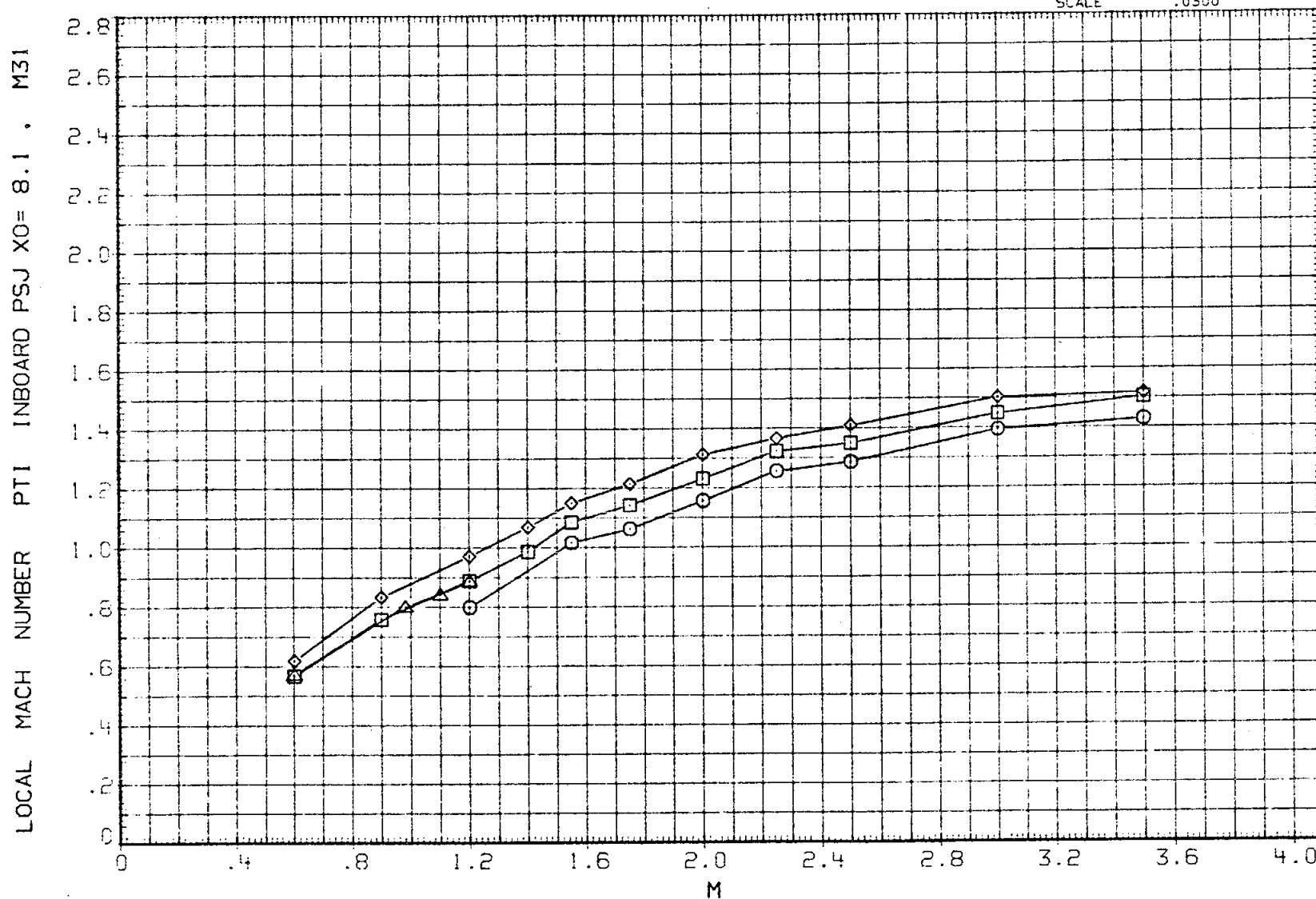


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDCLAP	REFERENCE INFORMATION		
REFX03	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2590.0000	SQ. FT.
REFX05	□	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LRFF	474.8000	IN.
REFX07	◇	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	DRFF	935.6800	IN.
REFX01	△	ARC 11-97-87-094 0A161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	XMRF	1075.6800	IN. X0
							YMRF	.0000	IN. Y0
							ZMRF	375.0000	IN. Z0
							SCALE	.0300	



FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

(C) ALPHA = 12.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION	
EE7X03	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000 SQ.FT.
EE7X05	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000 IN.
EE7X07	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800 IN.
EE7X01	△	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000			-7.170	XMRP	1076.6800 IN. XO
							YMPP	.0000 IN. YO
							ZMPP	375.0000 IN. ZO
							SCALE	.0300

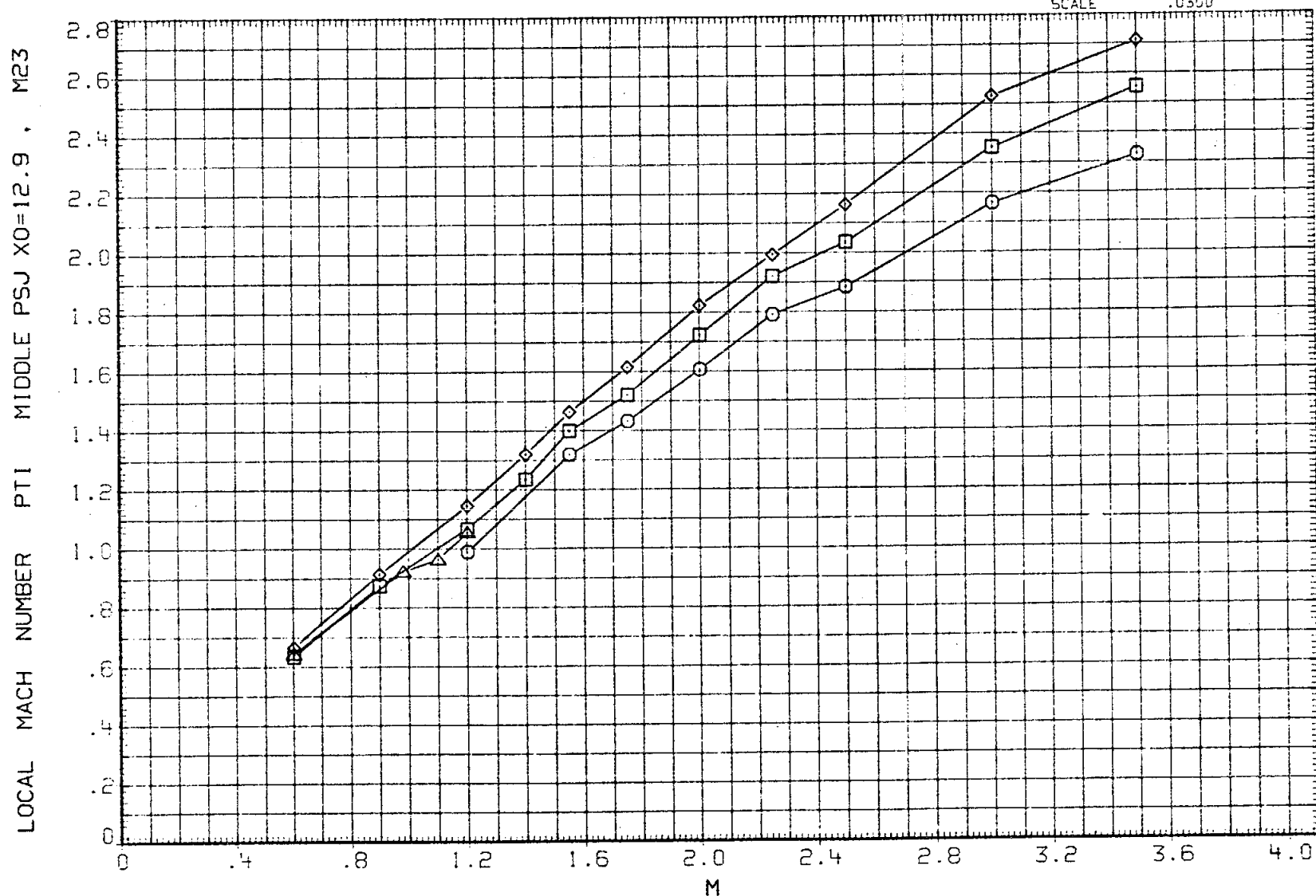


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILERON	SDFLAP	REFERENCE INFORMATION		
EE7X03	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	ORF	8688.0000	EQ. FY.
EE7X06	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LRF	474.8000	IN.
EE7X07	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BRF	936.6000	IN.
EE7X01	△	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0500	

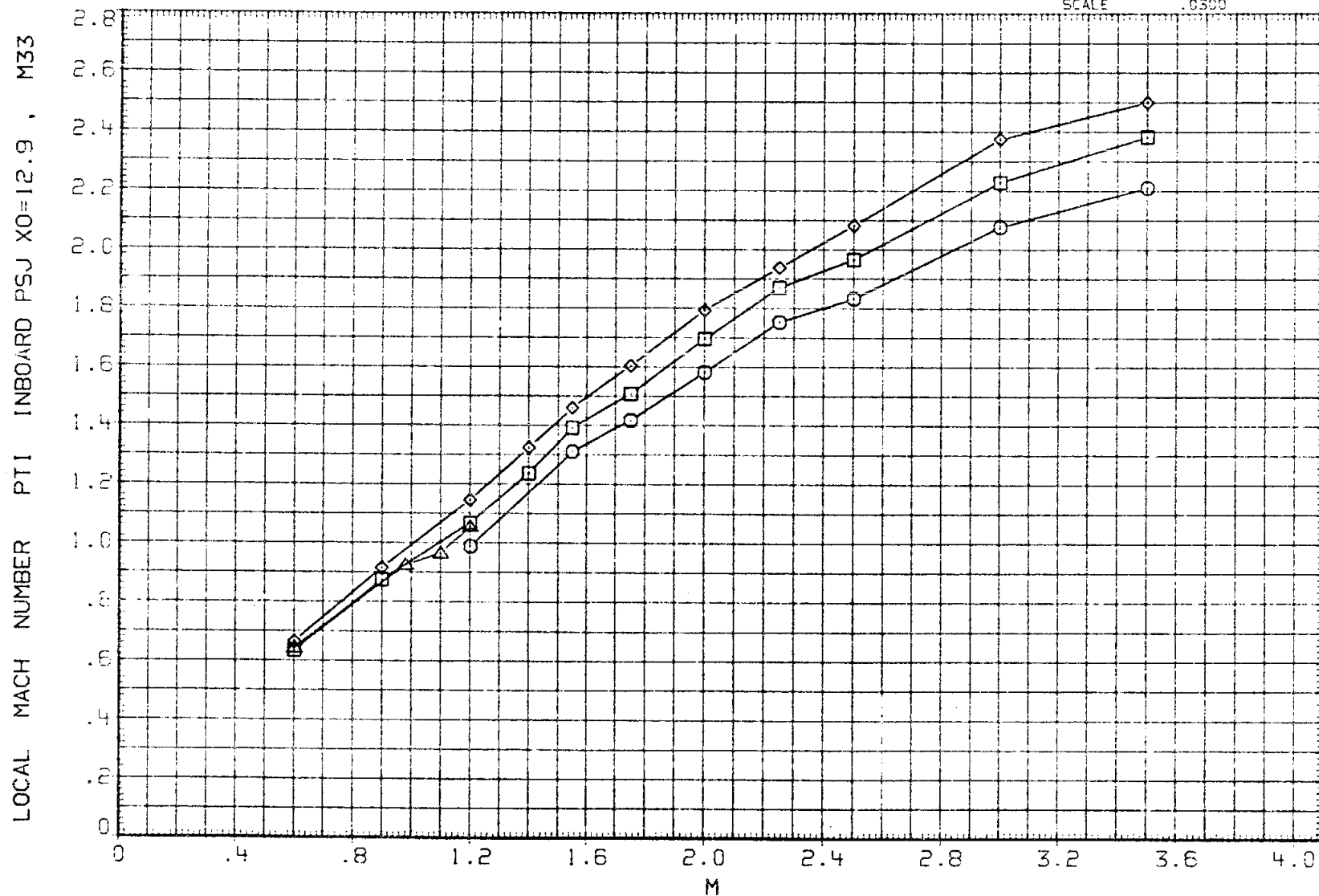


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

(C) ALPHA = 12.00



DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
EE7X03	○	ARC 11-97-87-09+ 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2590.0000	SQ.FT.
EE7X05	□	ARC 11-97-87-09+ 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
EE7X07	◇	ARC 11-97-87-09+ 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
EE7X01	△	DATA NOT AVAILABLE	.000				XMPP	1076.6800	IN. XO
							YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0300	

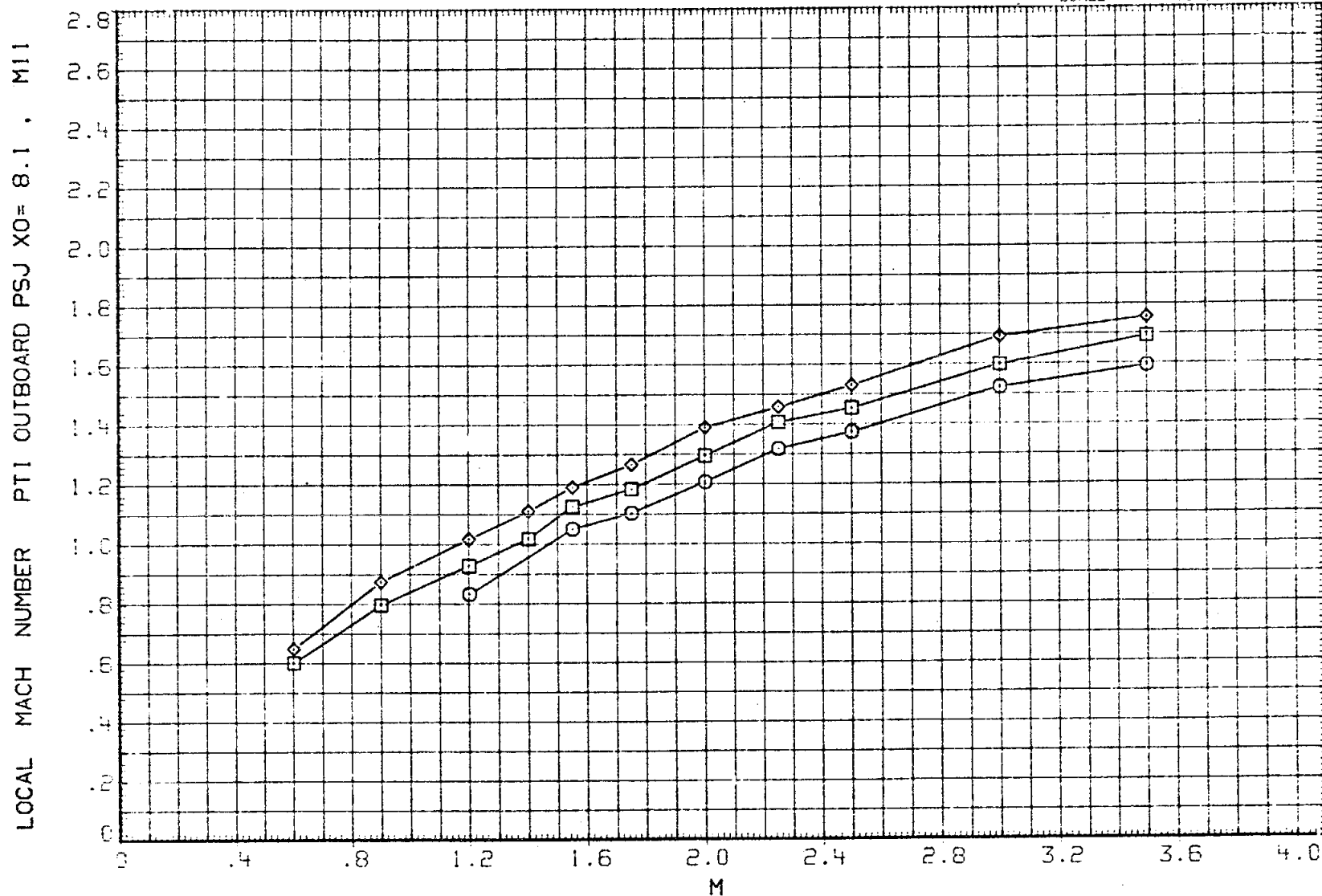


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BDPL/M

REFERENCE INFORMATION

11-97-87-094 OA161 ORBITER + RAKES  
 11-97-87-094 OA161 ORBITER + RAKES  
 11-97-87-094 OA161 ORBITER + RAKES  
 DATA NOT AVAILABLE

-5.000 .000 .000 -7.170  
 .000 .000 .000 -7.170  
 5.000 .000 .000 -7.170  
 .000

BWET 2680.0000 SQ. FT.  
 LTAF 474.8000 IN.  
 BWET 936.6800 IN.  
 XMRP 1036.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

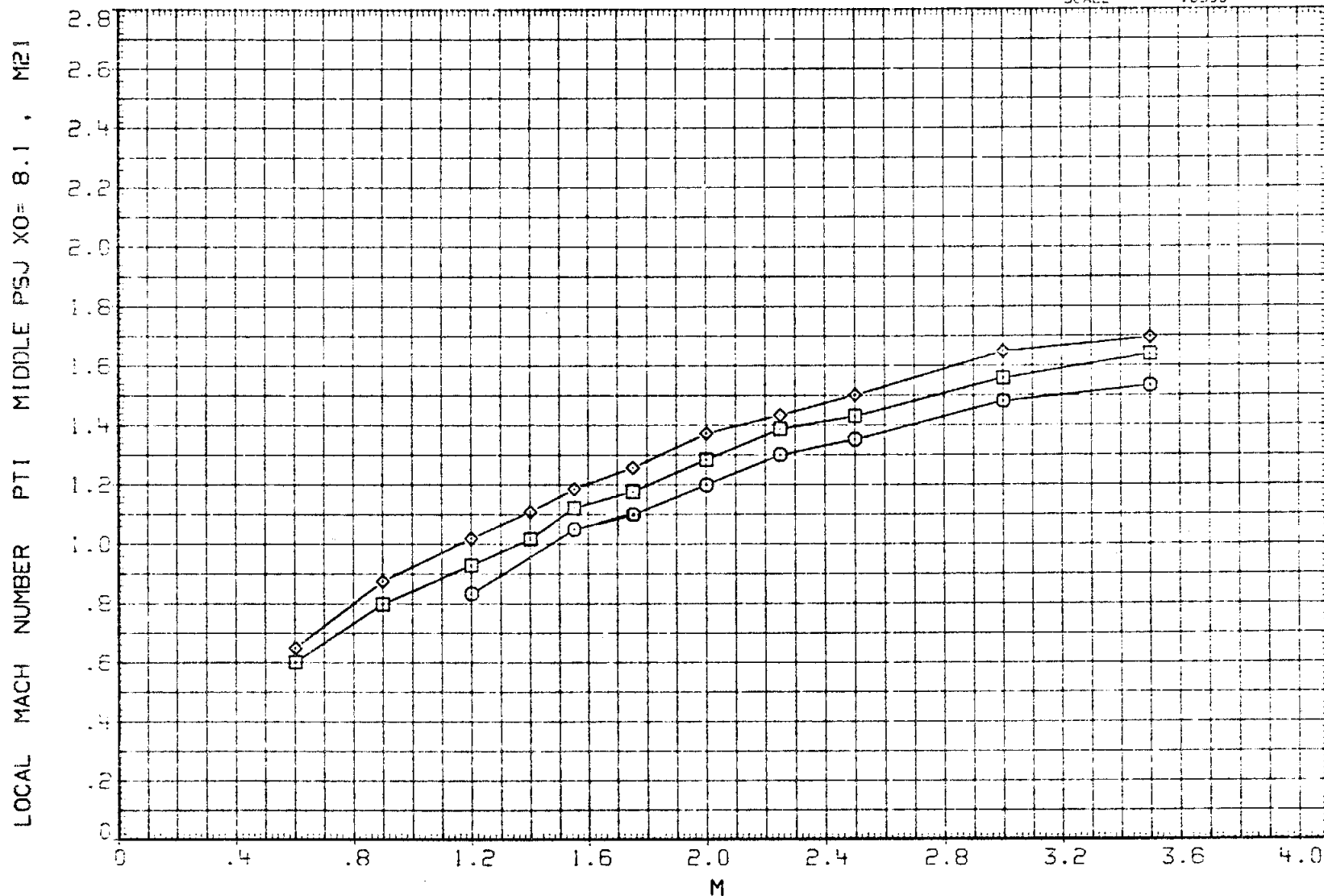


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

(D) ALPHA = 18.00

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DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
EE7X03	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
EE7X05	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
EE7X07	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
EE7X01	△	DATA NOT AVAILABLE	.000			-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

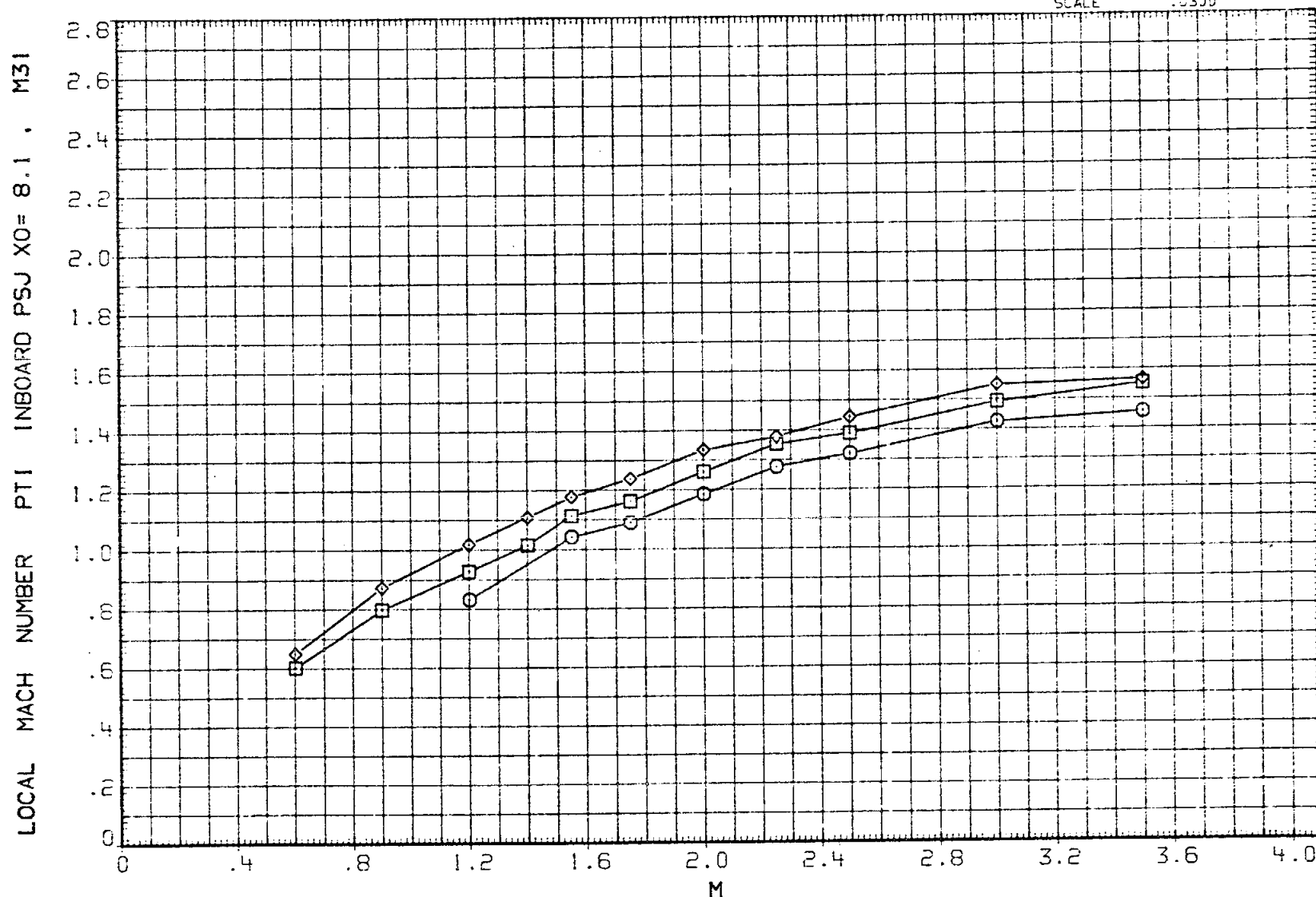


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BOPLAP

REFERENCE INFORMATION

EE7X03 ○ ARC 11-97-87-094 0A161 ORBITER + RAKES  
 EE7X05 □ ARC 11-97-87-094 0A161 ORBITER + RAKES  
 EE7X07 ◇ ARC 11-97-87-094 0A161 ORBITER + RAKES  
 EE7X01 △ DATA NOT AVAILABLE

-5.000 .000 .000 -7.170  
 .000 .000 .000 -7.170  
 5.000 .000 .000 -7.170  
 .000

SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6600 IN.  
 XMSP 1076.5900 IN. XC  
 YMSP .0000 IN. YC  
 ZMSP 375.0000 IN. ZC  
 SCALE .0000

LOCAL MACH NUMBER PT1 OUTBOARD PSJ XO=12.9 , M13

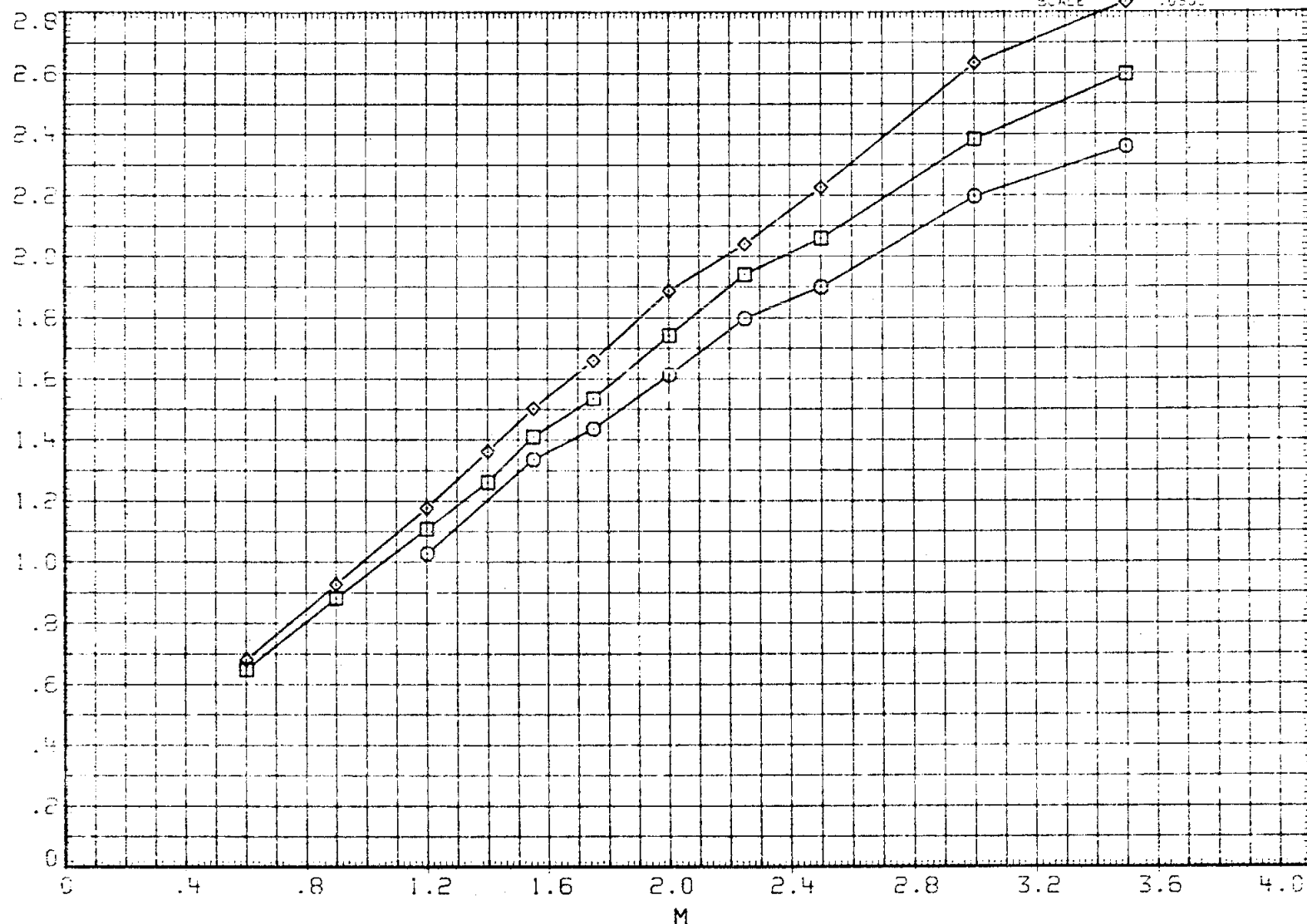


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

(D) ALPHA = 18.00

PAGE 366

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
EE7X03	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
EE7X05	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
EE7X07	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
EE7X09	△	DATA NOT AVAILABLE	.000			-7.170	XMPP	1076.6800	IN. X0
							YMPP	.0000	IN. Y0
							ZMPP	375.0000	IN. Z0
							SCALE	.9300	

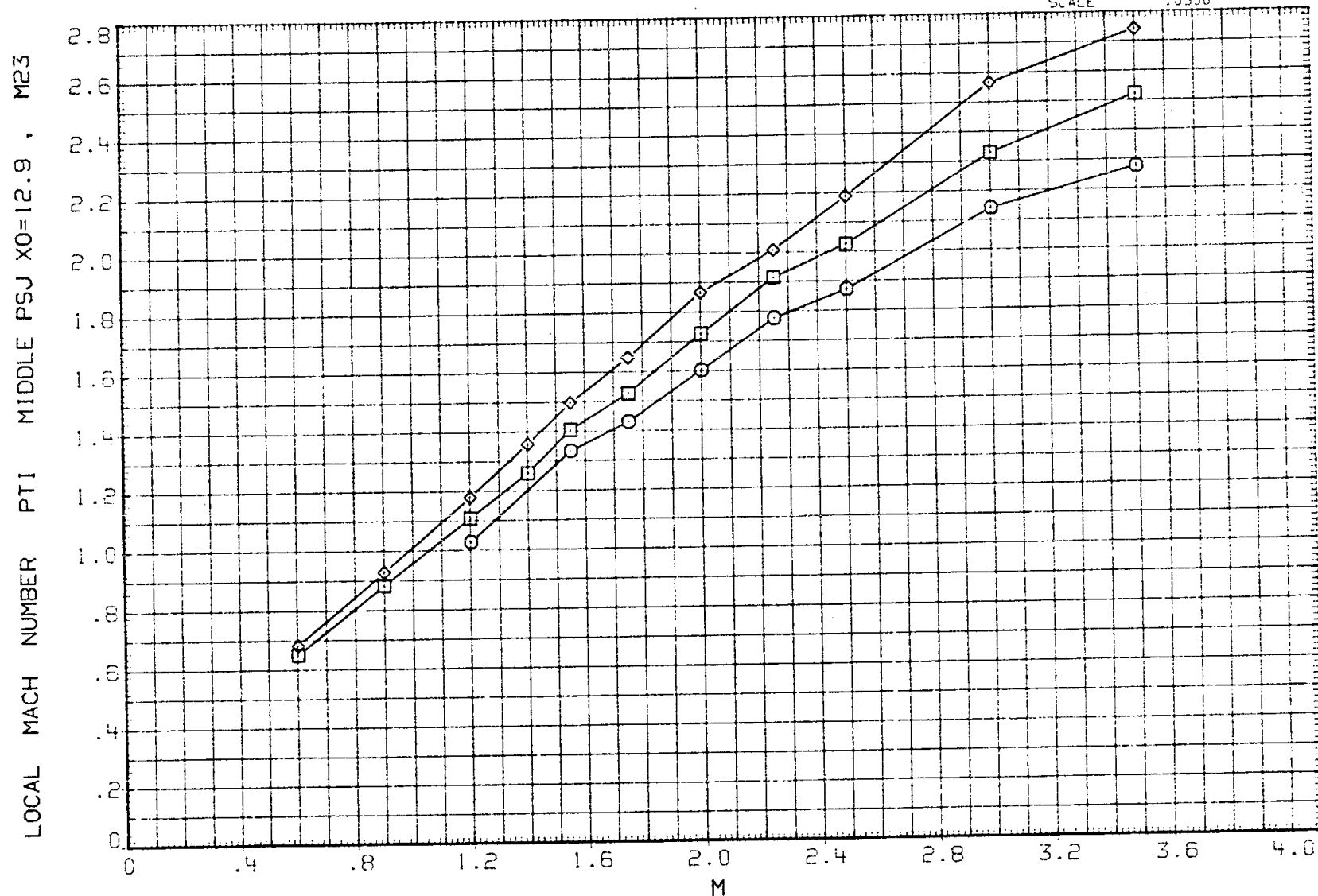


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BOFLAP

REFERENCE INFORMATION

FETX03 O ARC 11-87-87-094 OA16: ORBITER + RAKES  
 FETX05 O ARC 11-87-87-094 OA16: ORBITER + RAKES  
 FETX07 O ARC 11-87-87-094 OA16: ORBITER + RAKES  
 FETX01 Δ DATA NOT AVAILABLE

5.000 .000 .000 -7.177  
 .000 .000 .000 -7.170  
 5.000 .000 .000 -7.170  
 .000

PREF 2680.0000 SQ. FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMPP 1076.6800 IN. XO  
 YMPP .0000 IN. YO  
 ZMPP 375.0000 IN. ZO  
 SCALE .0300

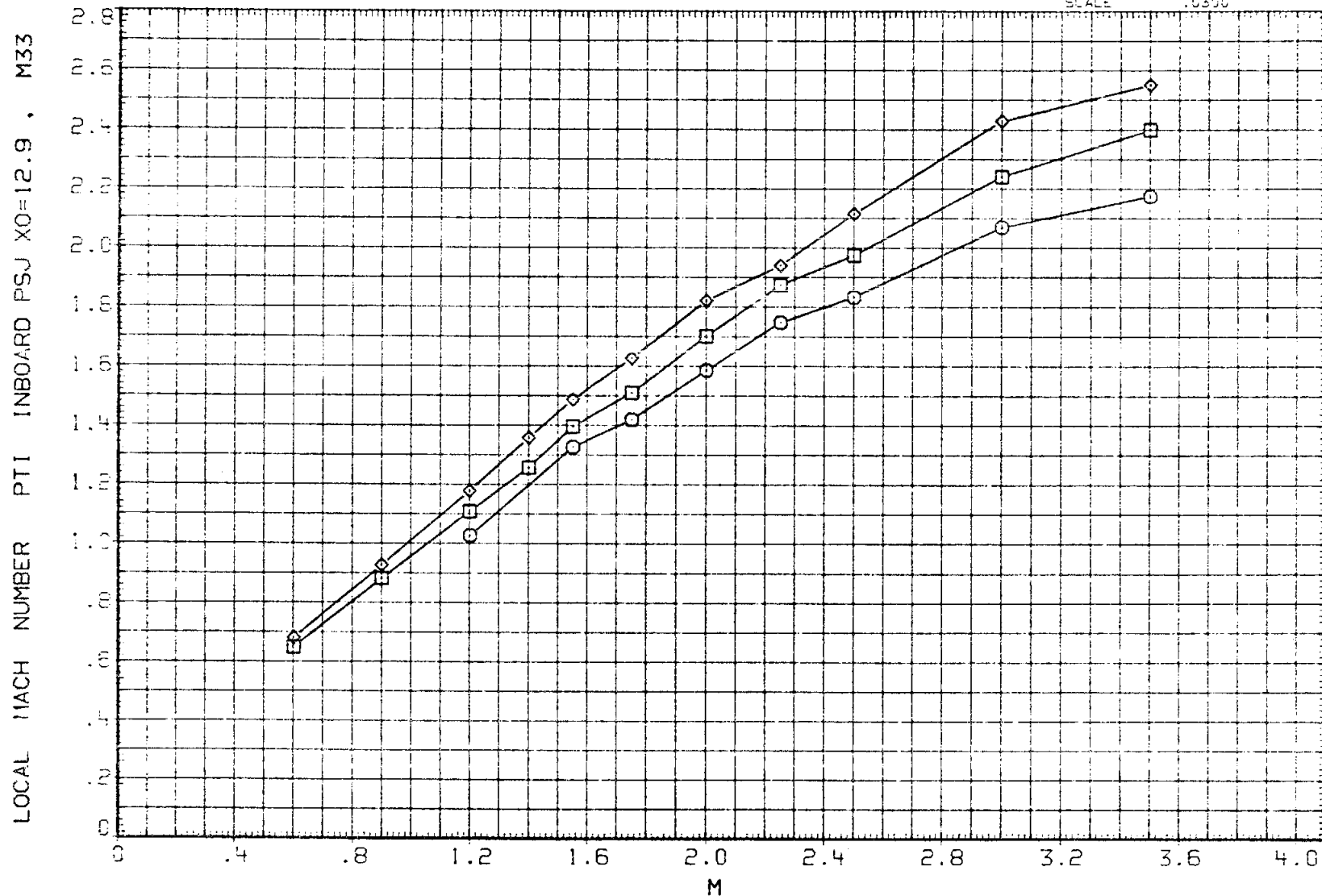


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER . LEFT RAKE

(D) ALPHA = 18.00

DATA SET SYMBOL		CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
EE7X03	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50.FT.
EE7X05	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
EE7X07	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6900	IN.
EE7X01	△	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000				XMRP	1076.6600	IN. X0
							YMRP	.0000	IN. Y0
							ZMRP	375.0000	IN. Z0
							SCALE	.0300	

LOCAL MACH NUMBER PT1 OUTBOARD PSJ XO= 8.1 . M11

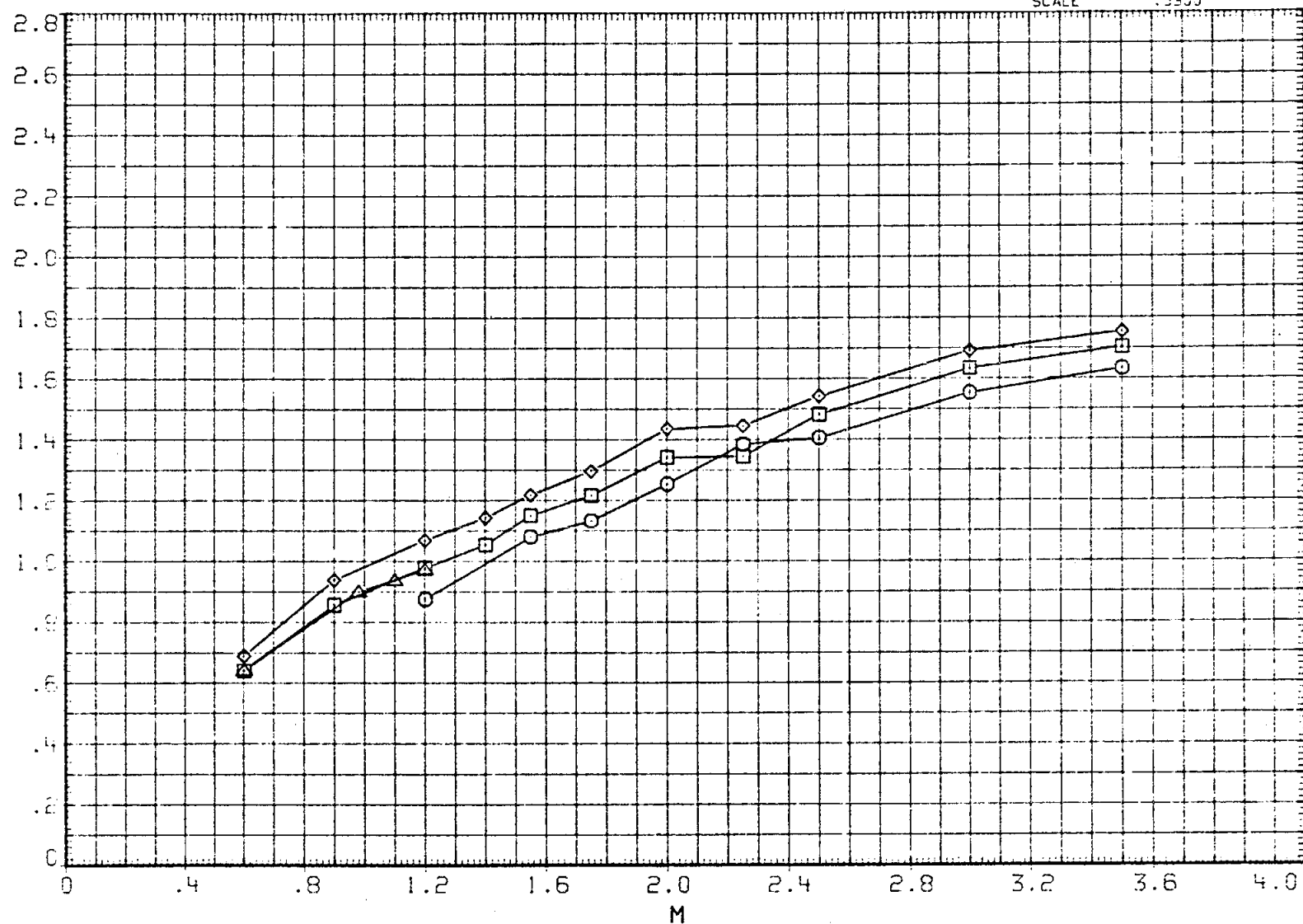


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFCAF	REFERENCE INFORMATION		
EE7X03	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SRET	2690.0000	50. FT.
EE7X05	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LRFF	474.8000	IN.
EE7X07	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	SRFF	936.6800	IN.
EE7X01	△	ARC 11-97-87-094 OA161 ORBITER - HING + RAKES	.000	.000	.000	-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

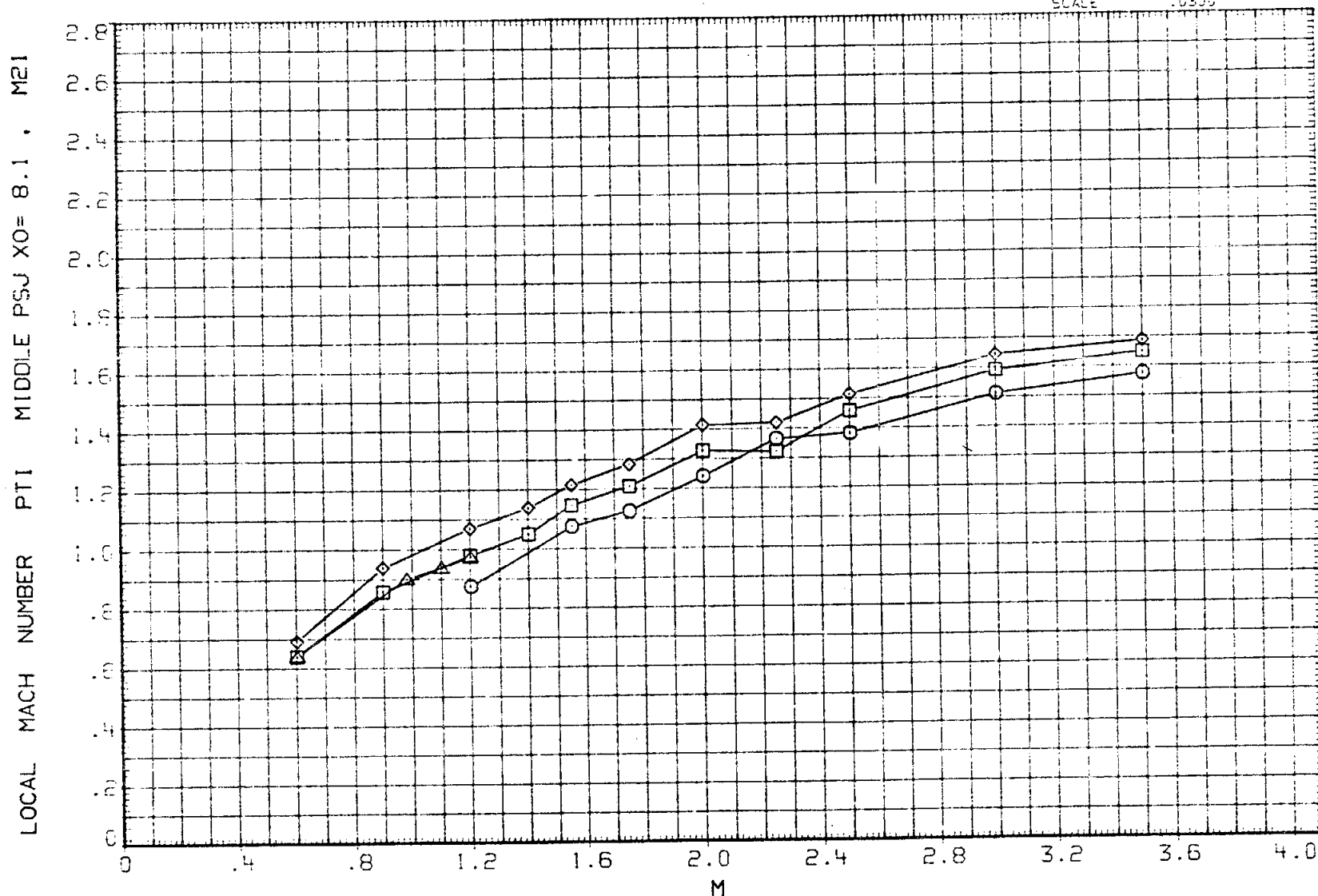


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

(E) ALPHA = 24.00



DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
EE7X03	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
EE7X05	□	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
EE7X07	◇	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
EE7X01	△	ARC 11-97-87-094 0A161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

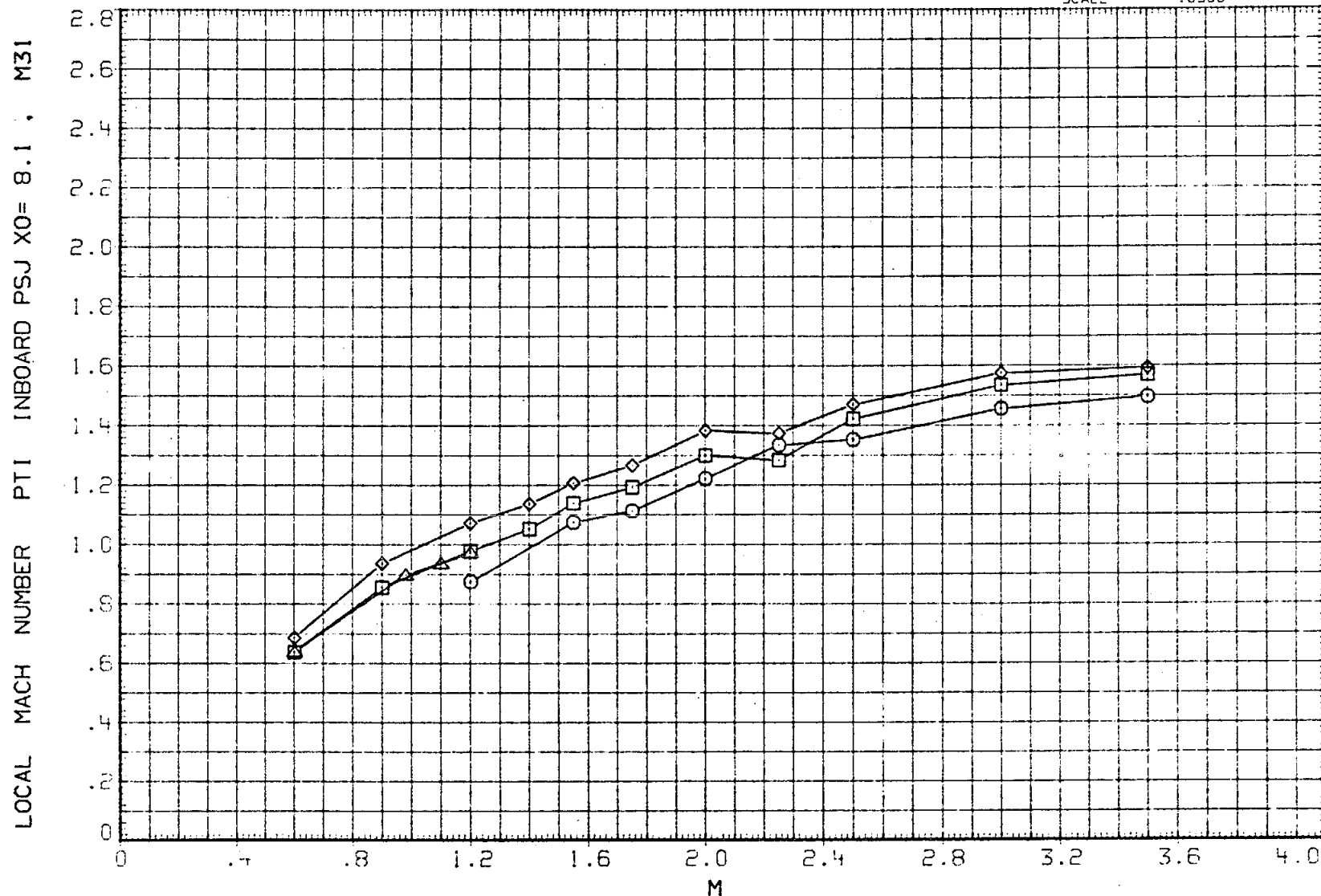


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
EE7X03	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50.FT.
EE7X05	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	UREF	474.8000	IN.
EE7X07	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	SREF	936.6800	IN.
EE7X01	△	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

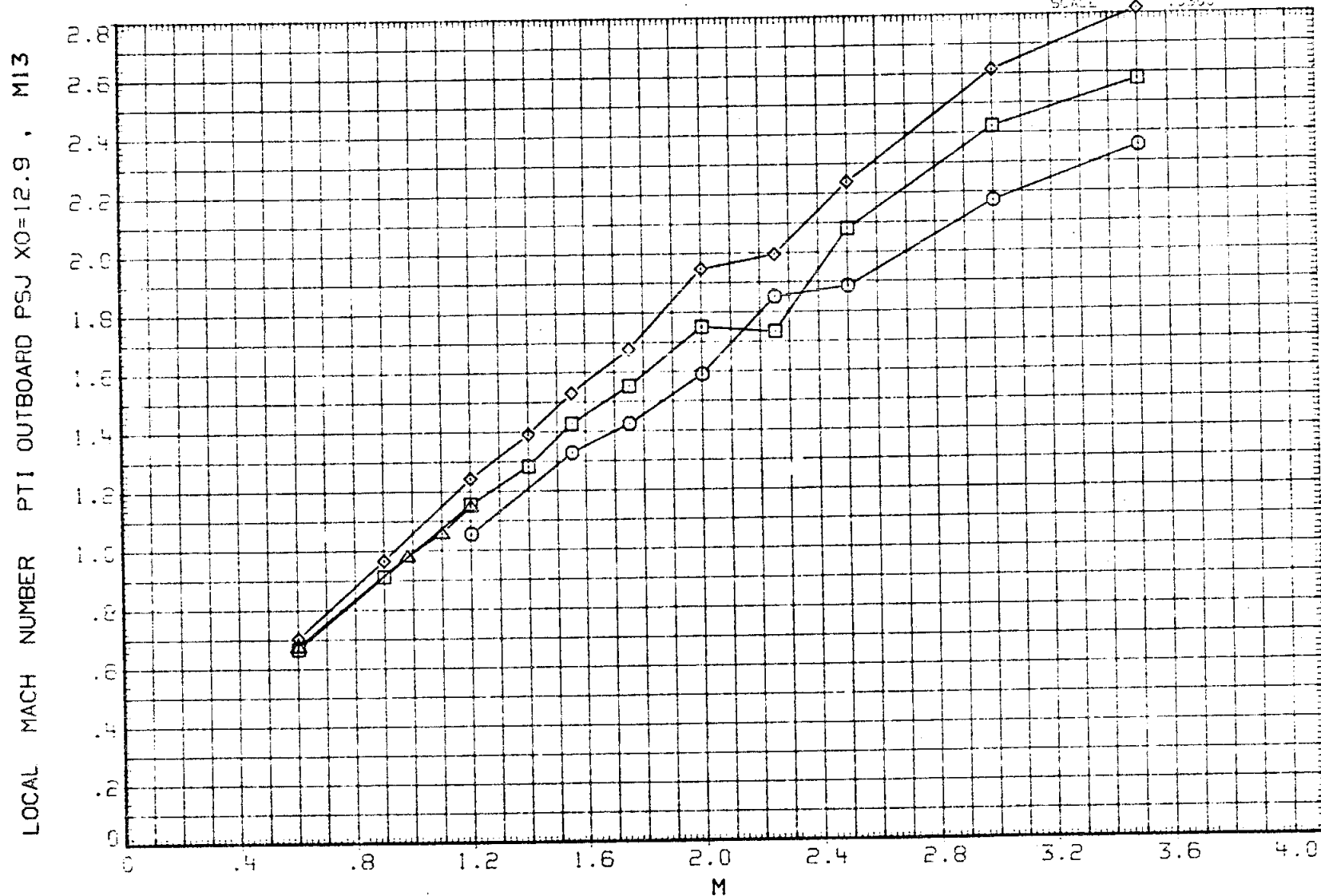


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

(E) ALPHA = 24.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
EE7X03	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
EE7X05	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
EE7X07	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	935.6800	IN.
EE7X01	△	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	XMPP	1076.6800	IN. XO
							YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0300	

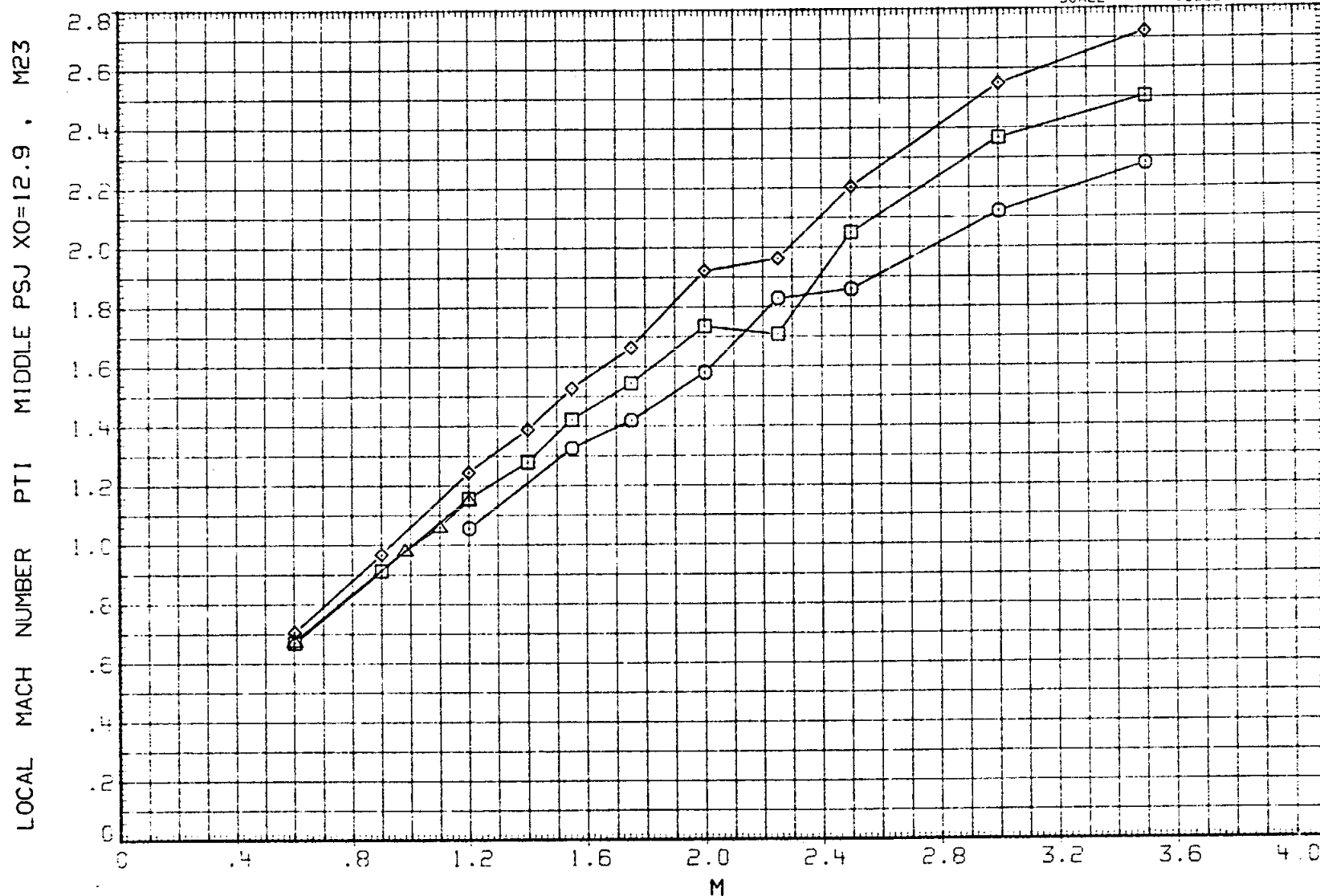


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

DATA SET 5788

CONFIGURATION

BETA

ELEVON

AILRON

BDPLAF

REFERENCE INFORMATION

DATA SET	CONFIGURATION	BETA	ELEVON	AILRON	BDPLAF
000000	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170
000001	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170
000002	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170
000003	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000	.000	.000	-7.170

REFERENCE INFORMATION	SCALE
SREF 2690.0000 SQ. FT.	
UREF 474.8000 IN.	
BREF 936.6000 IN.	
XMPP 1076.6000 IN. XO	
YMPP .0000 IN. YO	
ZMPP 375.0000 IN. ZO	
SCALE .0500	

LOCAL MACH NUMBER PT1 INBOARD PSU XO=12.9 , M33

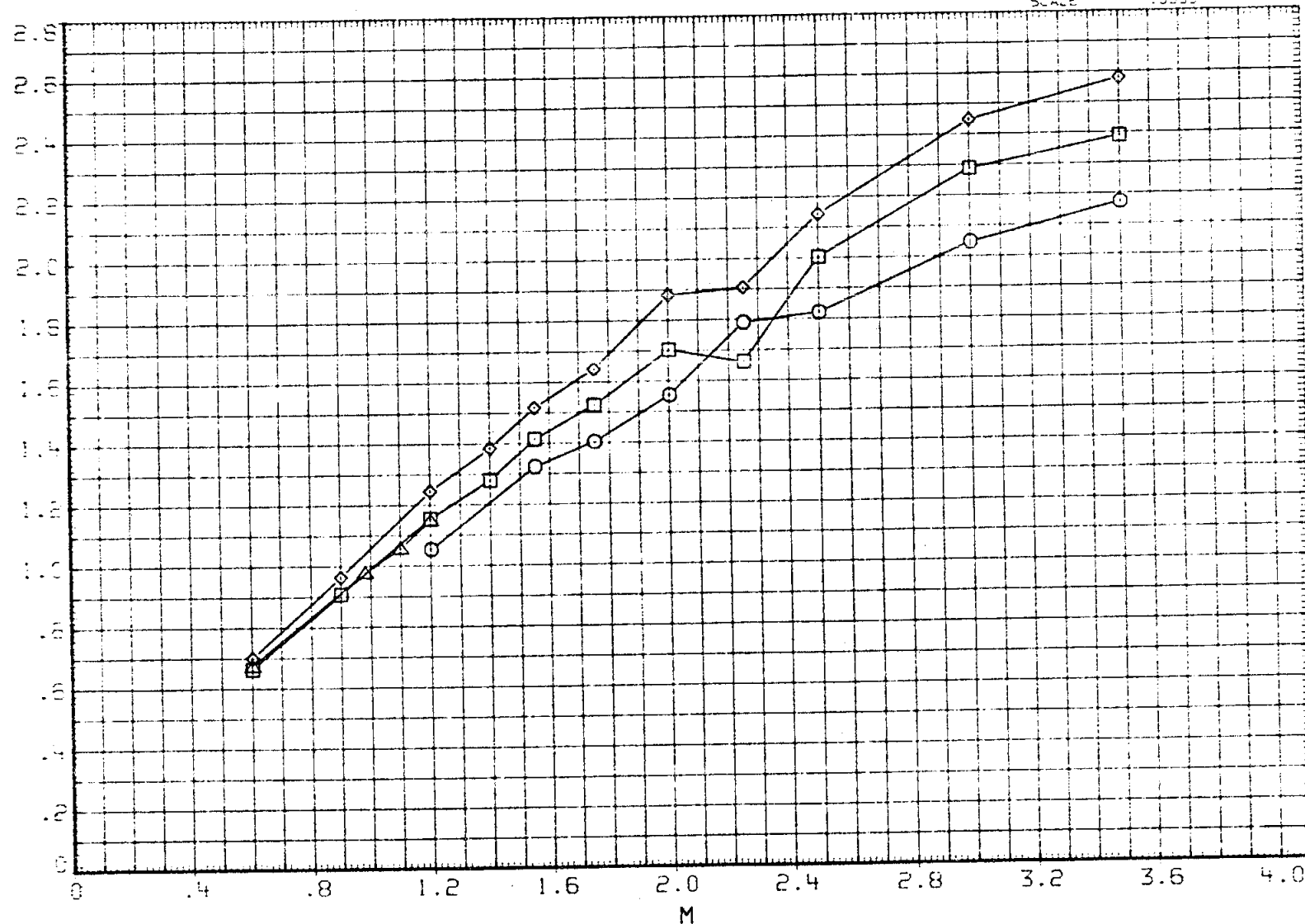


FIG. 18 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER LEFT RAKE

(E) ALPHA = 24.00

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
EE7803	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50.FT.
EE7805	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
EE7807	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
EE7801	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000				XMRP	1076.6800	IN. X0
						YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

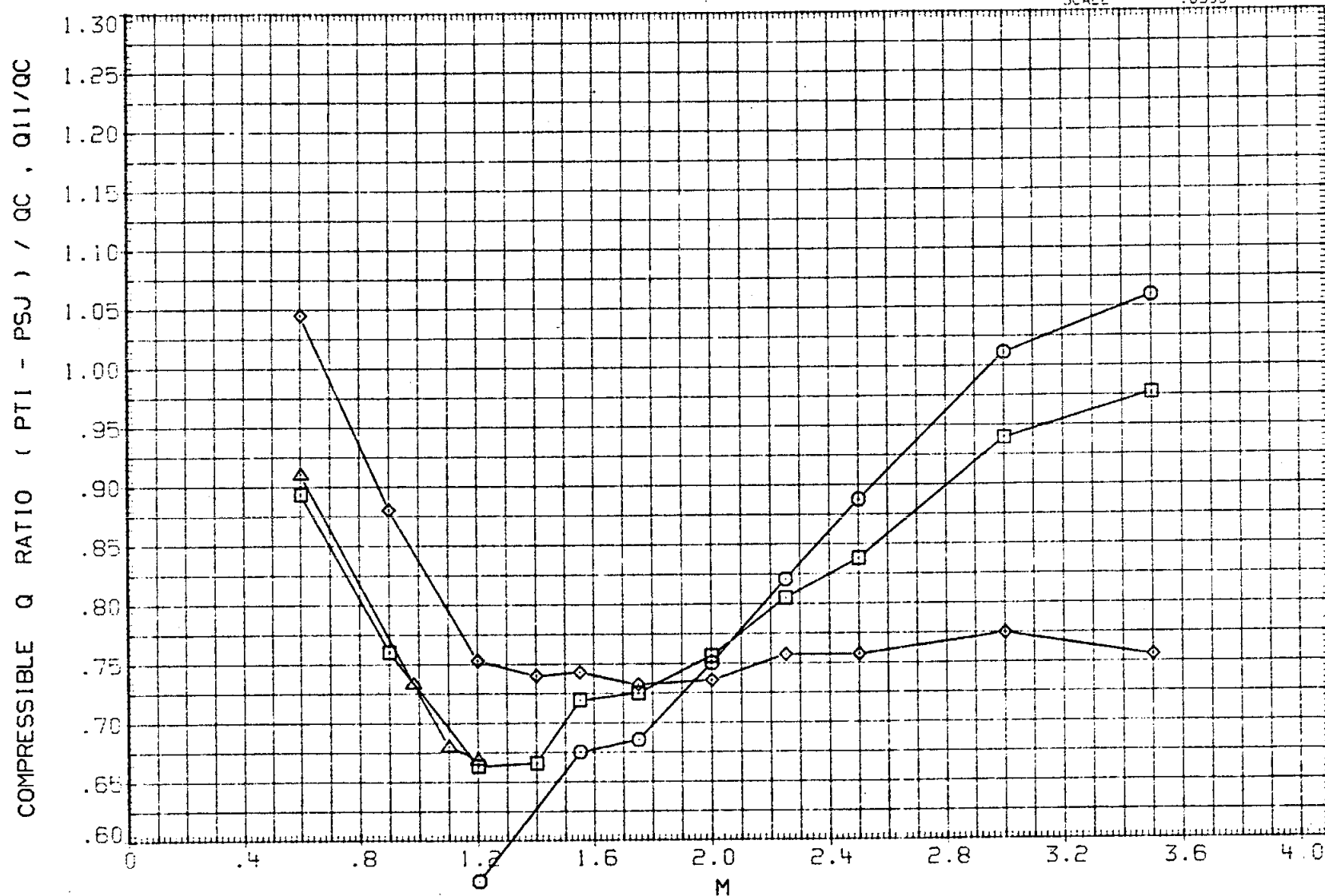


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q11/QC LEFT RAKE

(A) ALPHA = .00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AIRLON	BOLAP	REFERENCE INFORMATION		
001000	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ. FT.
001000	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
001000	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
001000	△	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

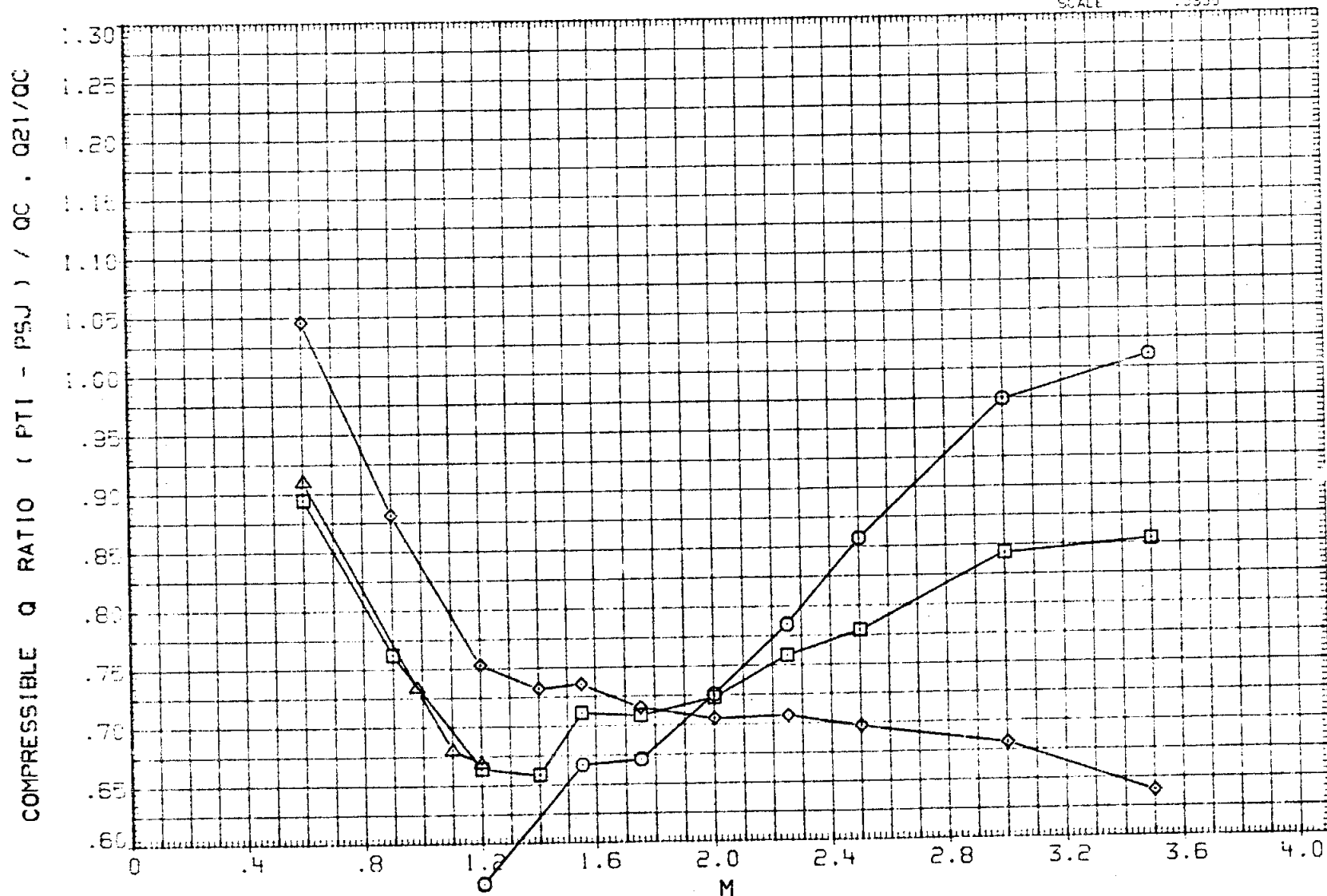


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1/QC LEFT RAKE

(A) ALPHA = .00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
EE7803	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SG.FT.
EE7805	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
EE7807	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
EE7801	△	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000			-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

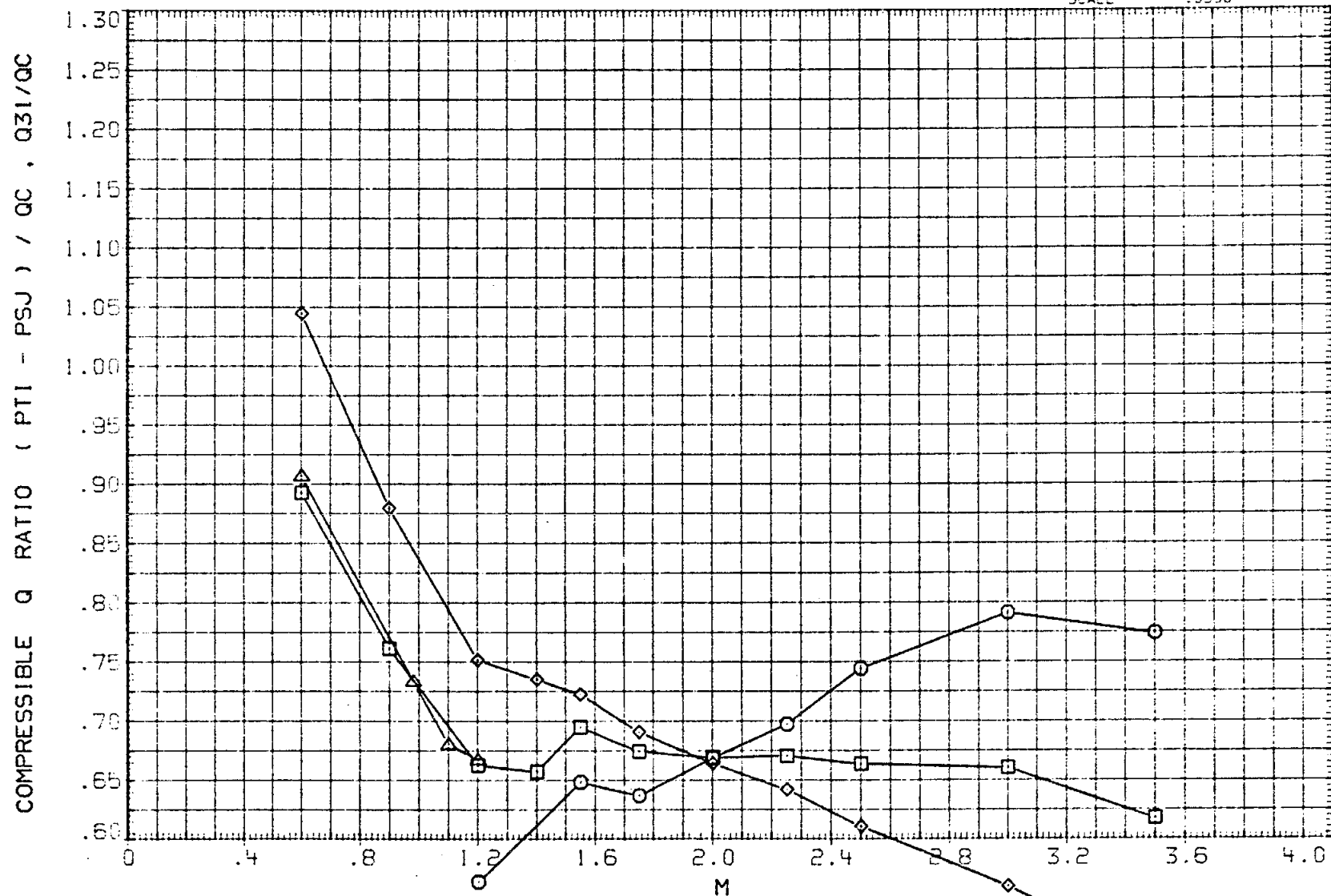


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO QI/QC LEFT RAKE

(A) ALPHA = .00

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	HD LAR	REFERENCE INFORMATION		
EE7803	ARC 11-97-87-094 OA161 ORBITER * RAKES	-5.000	.000	.000	-7.70	SREF	2590.0000	SQ. FT.
EE7805	ARC 11-97-87-094 OA161 ORBITER * RAKES	.000	.000	.000	-7.170	UREF	474.8000	IN.
EE7807	ARC 11-97-87-094 OA161 ORBITER * RAKES	5.000	.000	.000	-7.170	BREF	935.6000	IN.
EE7801	ARC 11-97-87-094 OA161 ORBITER - WING * RAKES	.000				XMPP	1076.6000	IN. XO
						YMPP	.0000	IN. YO
						ZMPP	375.0000	IN. ZO
						SCALE	.0500	

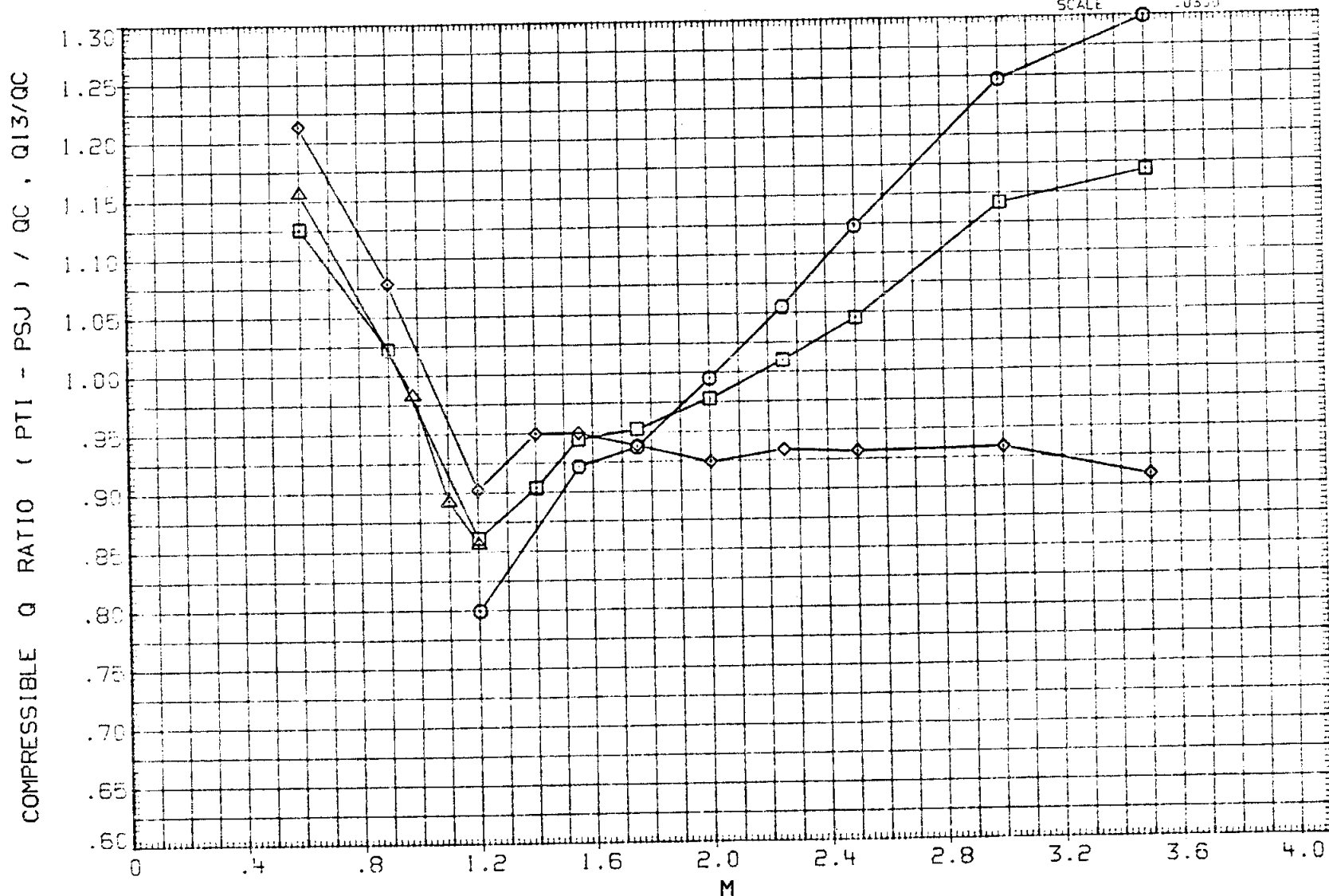


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q13/QC LEFT RAKE

(A) ALPHA = .00



DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
EE7B03	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
EE7B05	□	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
EE7B07	◇	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	OREF	936.6800	IN.
EE7B01	△	ARC 11-97-87-094 0A161 ORBITER - WING + RAKES	.000			-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0330	

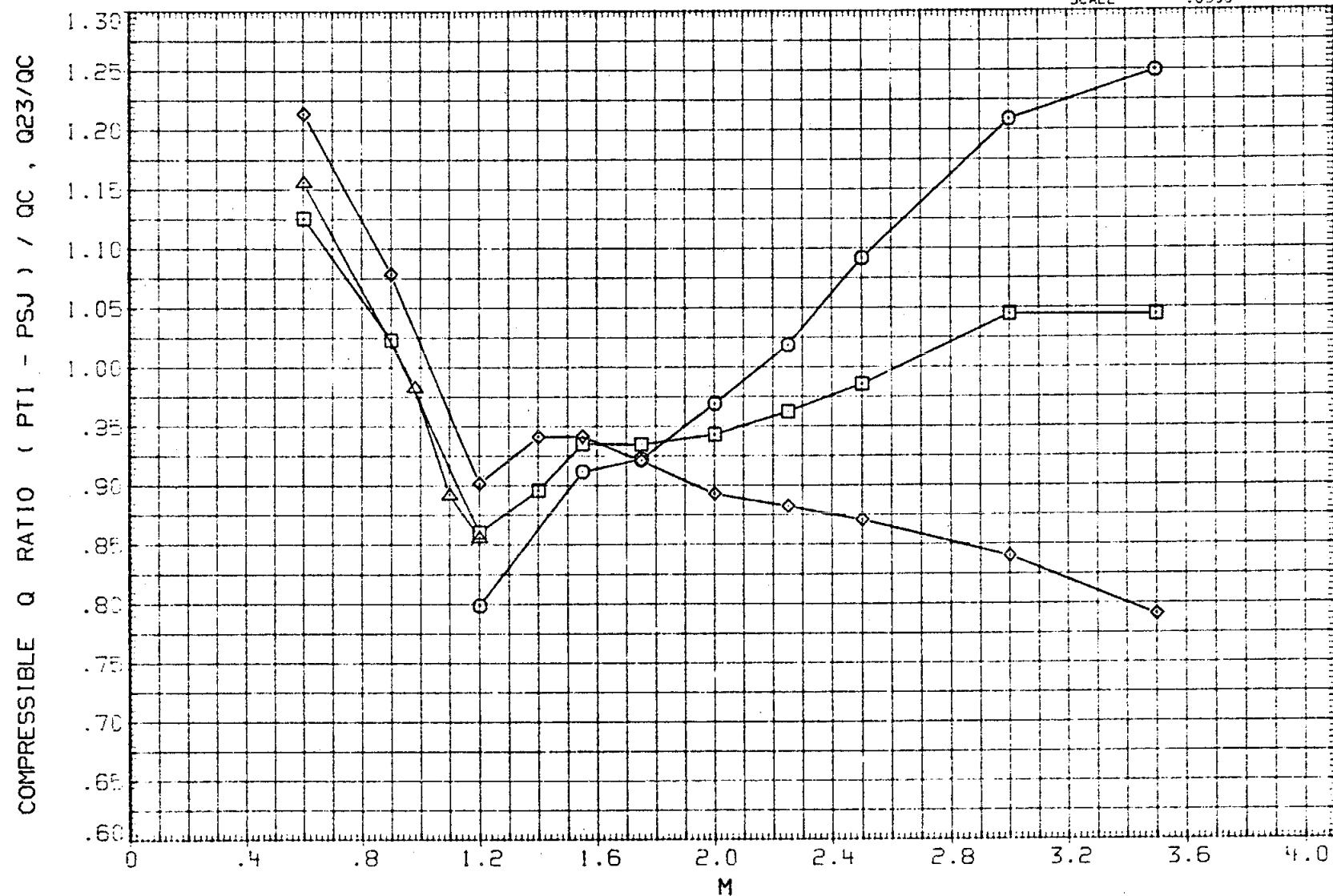


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC LEFT RAKE

(A) ALPHA = .00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDLAP	REFERENCE INFORMATION		
EE7803	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SRFC	2680.0000	SO.FT.
EE7805	□	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LRFC	474.8000	IN.
EE7807	◇	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BRFC	936.6000	IN.
EE7801	△	ARC 11-97-87-094 0A161 ORBITER + WING + RAKES	.000	.000	.000	-7.170	YMRP	1076.6000	IN. X0
							YMRP	.0000	IN. Y0
							ZMRP	375.0000	IN. Z0
							SCALE	.0000	

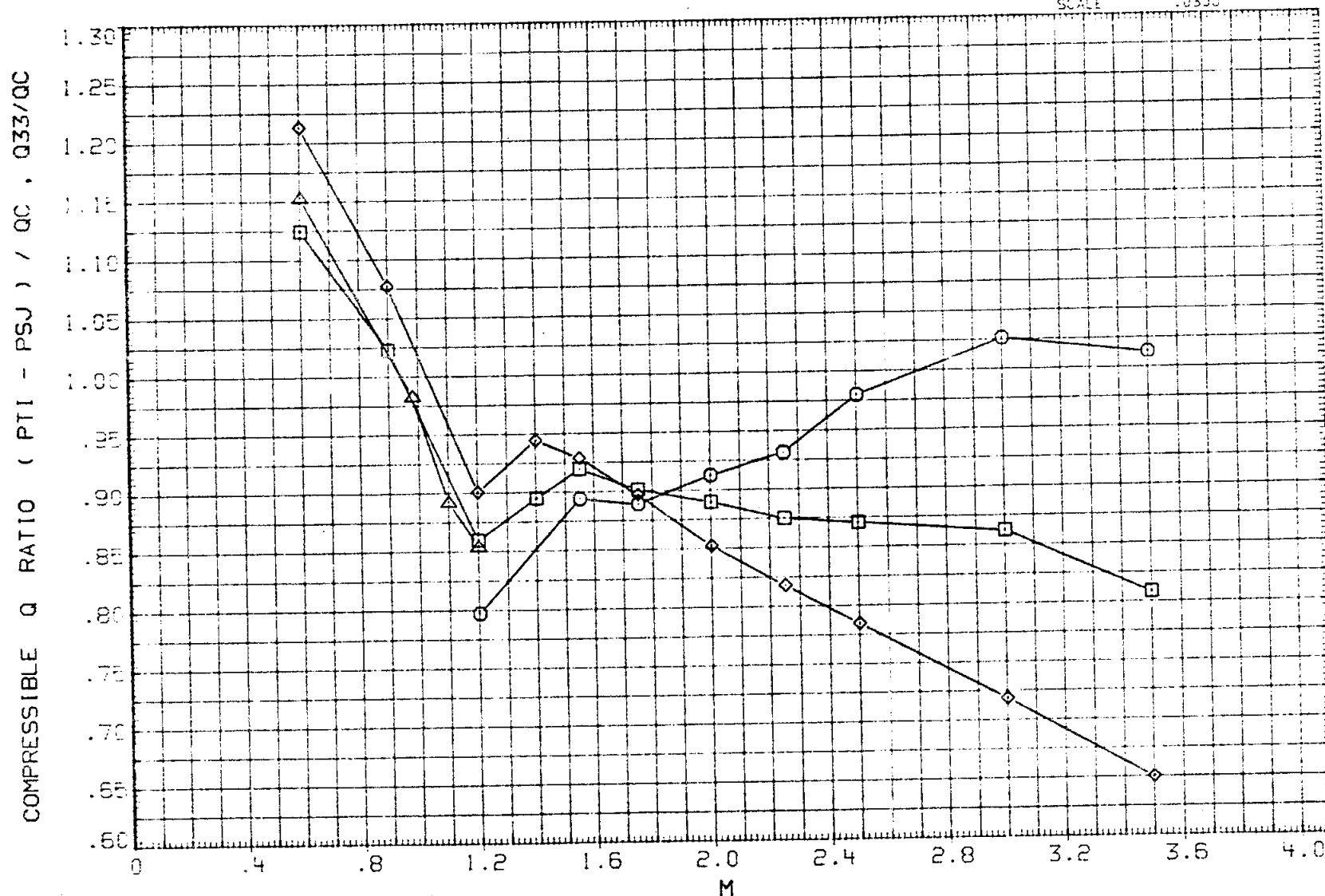


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC LEFT RAKE

(A) ALPHA = .00

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BDFLAP

REFERENCE INFORMATION

EE7803 ○ ARC 11-97-87-094 OA161 ORBITER + RAKES  
 EE7805 □ ARC 11-97-87-094 OA161 ORBITER + RAKES  
 EE7807 ◇ ARC 11-97-87-094 OA161 ORBITER + RAKES  
 EE7801 △ DATA NOT AVAILABLE

-5.000 .000 .000 -7.170  
 .000 .000 .000 -7.170  
 5.000 .000 .000 -7.170  
 .000 .000 .000 -7.170

SREF 2690.0000 50.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

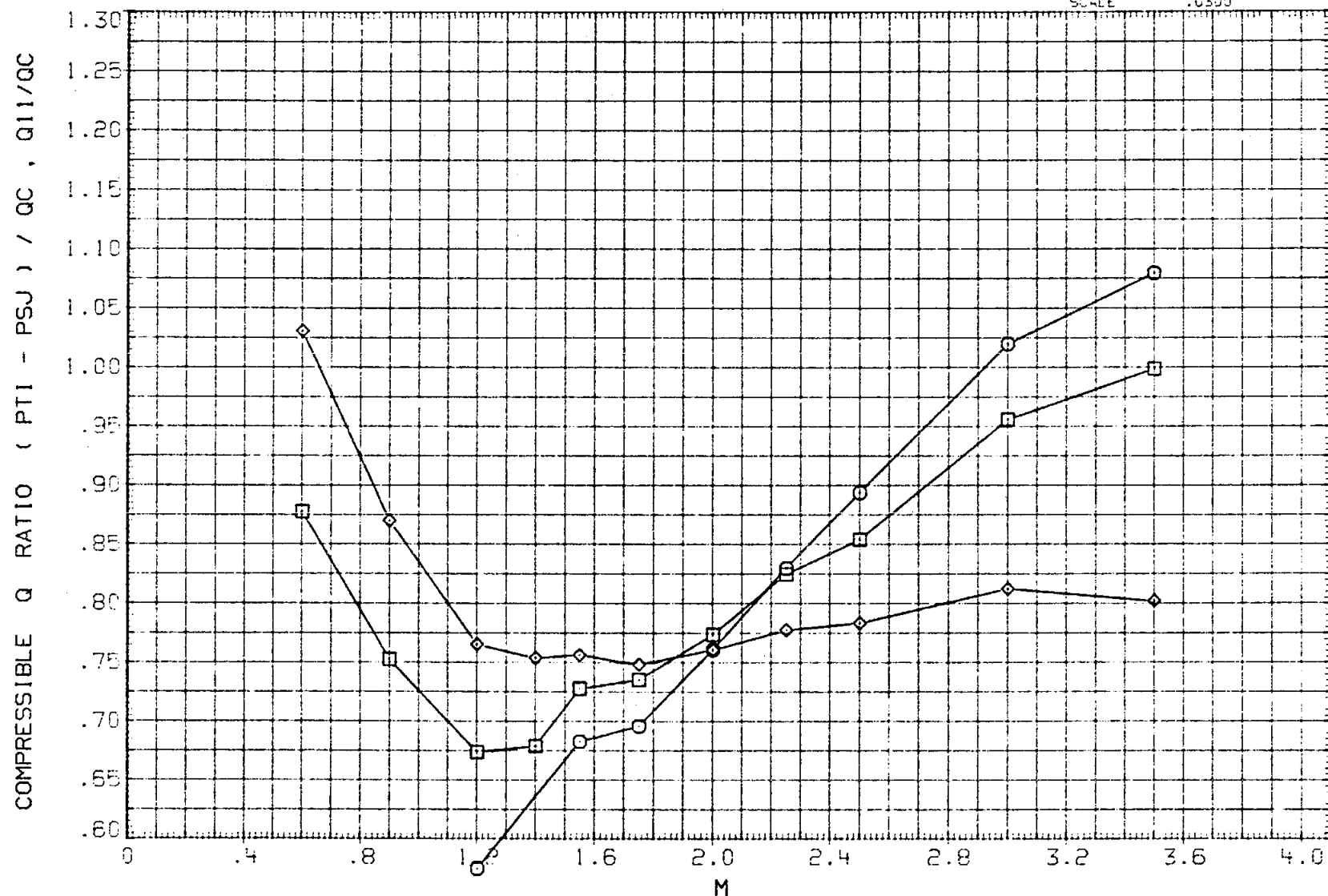


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO QI1/QC LEFT RAKE

(B) ALPHA = 6.00

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DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
EE7803	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SPIT	2690.0000	50. FT.
EE7805	□	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
EE7807	◇	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	935.6800	IN.
EE7801	△	DATA NOT AVAILABLE	.000			-7.170	YMPP	1075.6800	IN. XO
							YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0300	

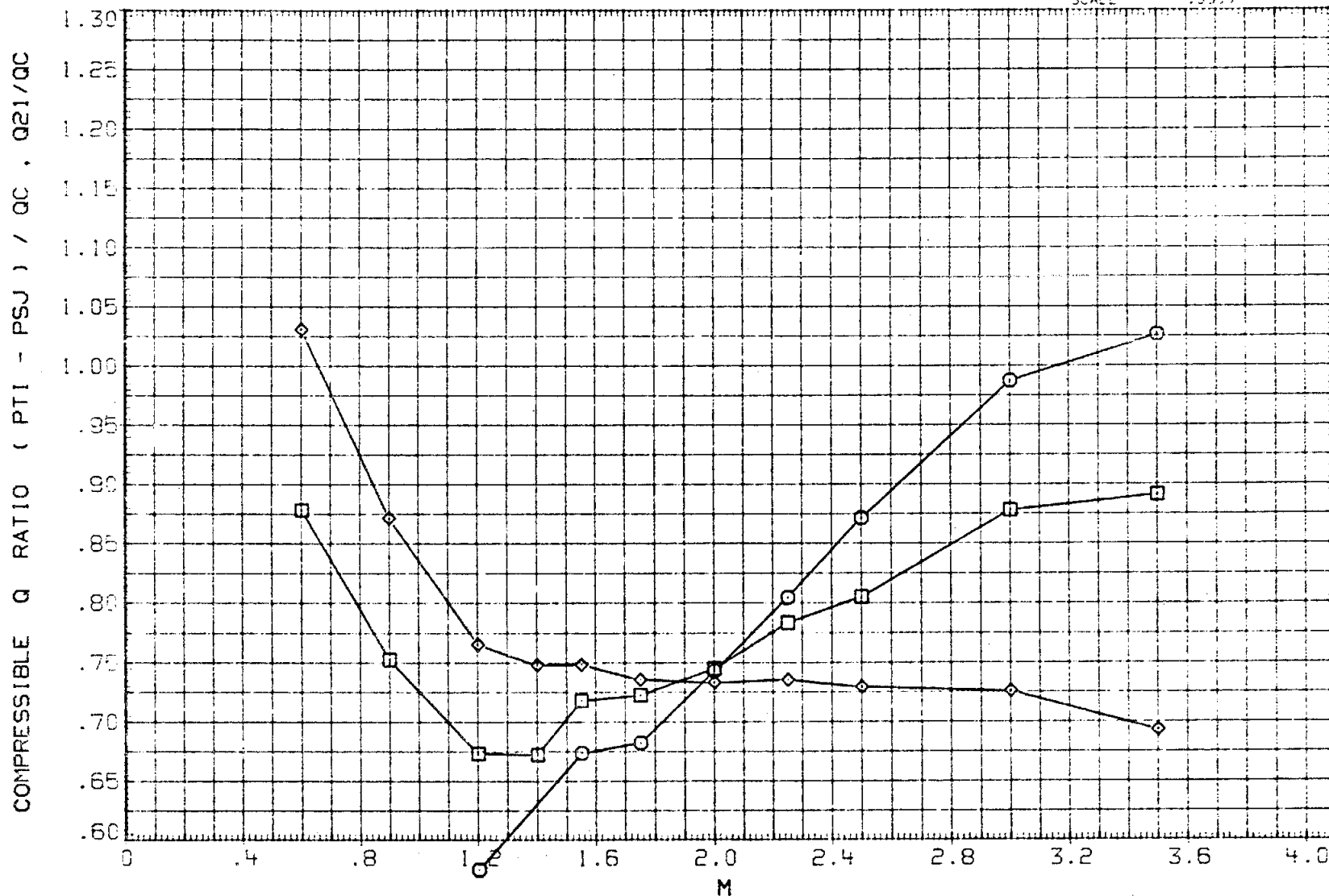


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC LEFT RAKE

(B) ALPHA = 6.00

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
EE7803	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
EE7805	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
EE7807	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
EE7801	DATA NOT AVAILABLE	.000			-7.170	YMPP	1076.6800	IN. XO
						YMPP	.0000	IN. YO
						ZMPP	375.0000	IN. ZO
						SCALE	.0700	

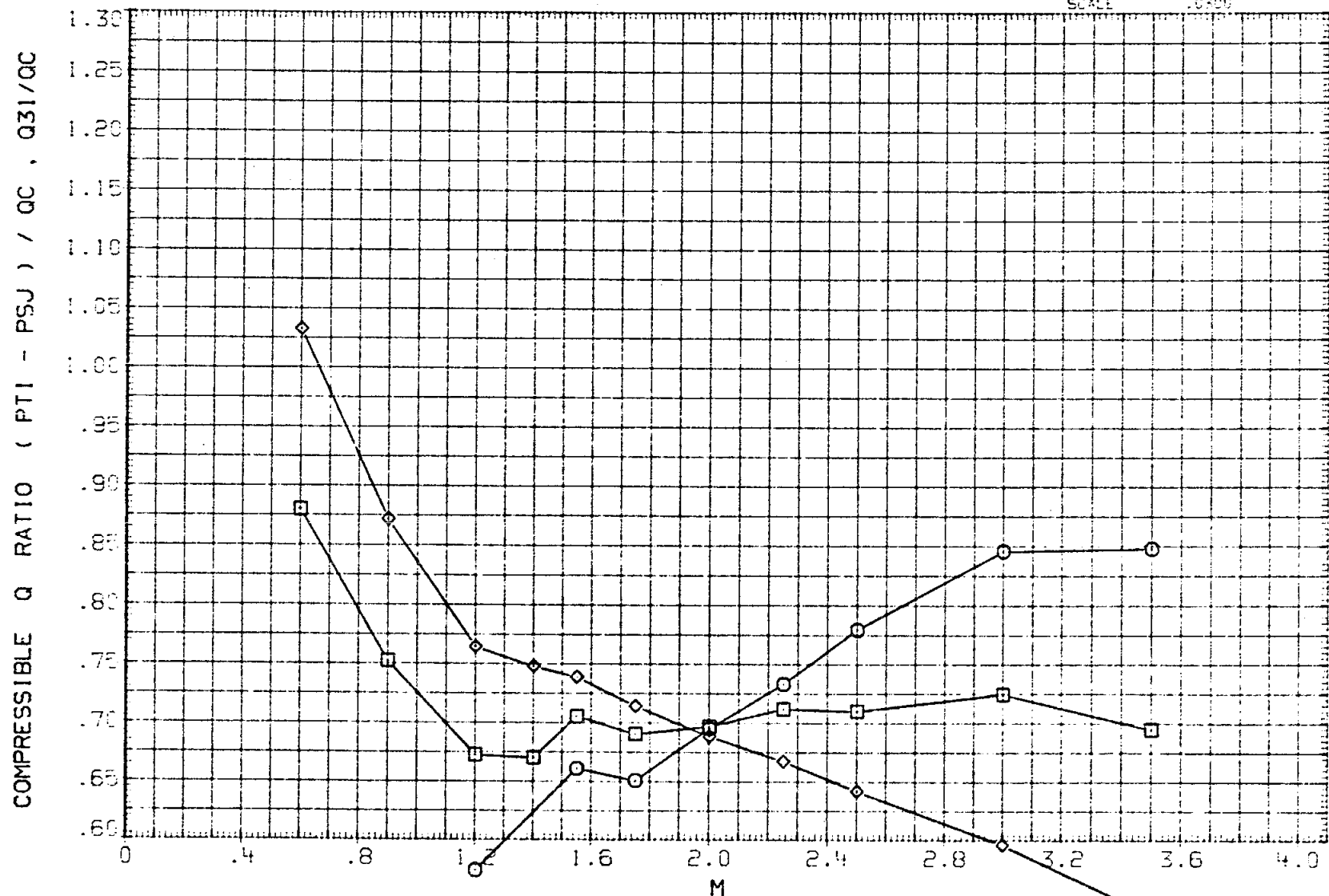


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC LEFT RAKE

(B) ALPHA = 6.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
EE7802	○	ARC 11-97-87-094 OA161 ORBITER * RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	EQ. FT.
EE7806	□	ARC 11-97-87-094 OA161 ORBITER * RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
EE7807	◇	ARC 11-97-87-094 OA161 ORBITER * RAKES	5.000	.000	.000	-7.170	SREF	936.6000	IN.
EE7801	△	DATA NOT AVAILABLE	.000			-7.170	XMRP	1076.5800	IN. X0
							YMRP	.0000	IN. Y0
							ZMRP	375.0000	IN. Z0
							SCALE	.0300	

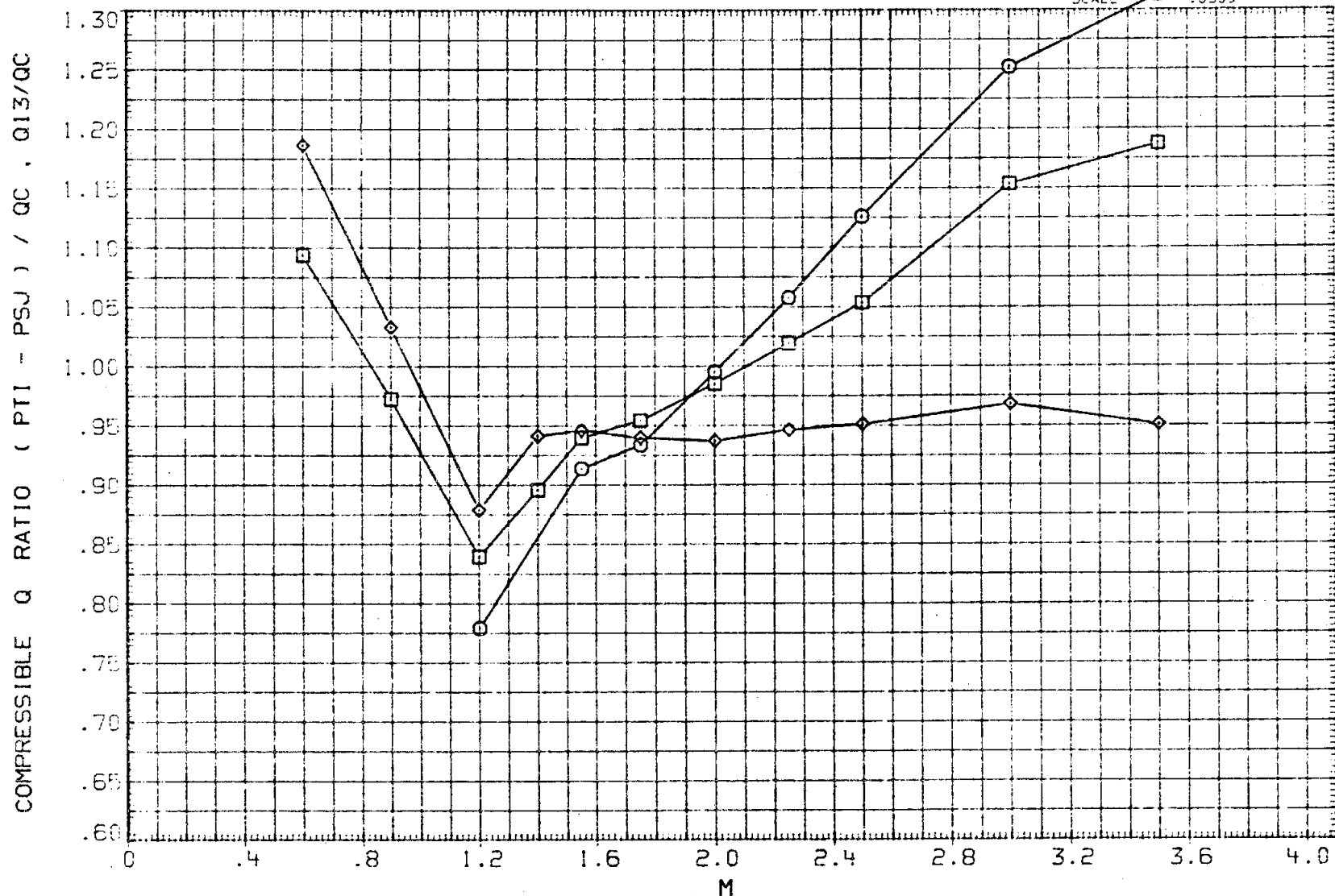


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q11/QC LEFT RAKE

(B) ALPHA = 6.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
EE7B03	○	ARC 11-97-87-09+ OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
EE7B05	□	ARC 11-97-87-09+ OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
EE7B07	◇	ARC 11-97-87-09+ OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6900	IN.
EE7B01	△	DATA NOT AVAILABLE	.000			-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

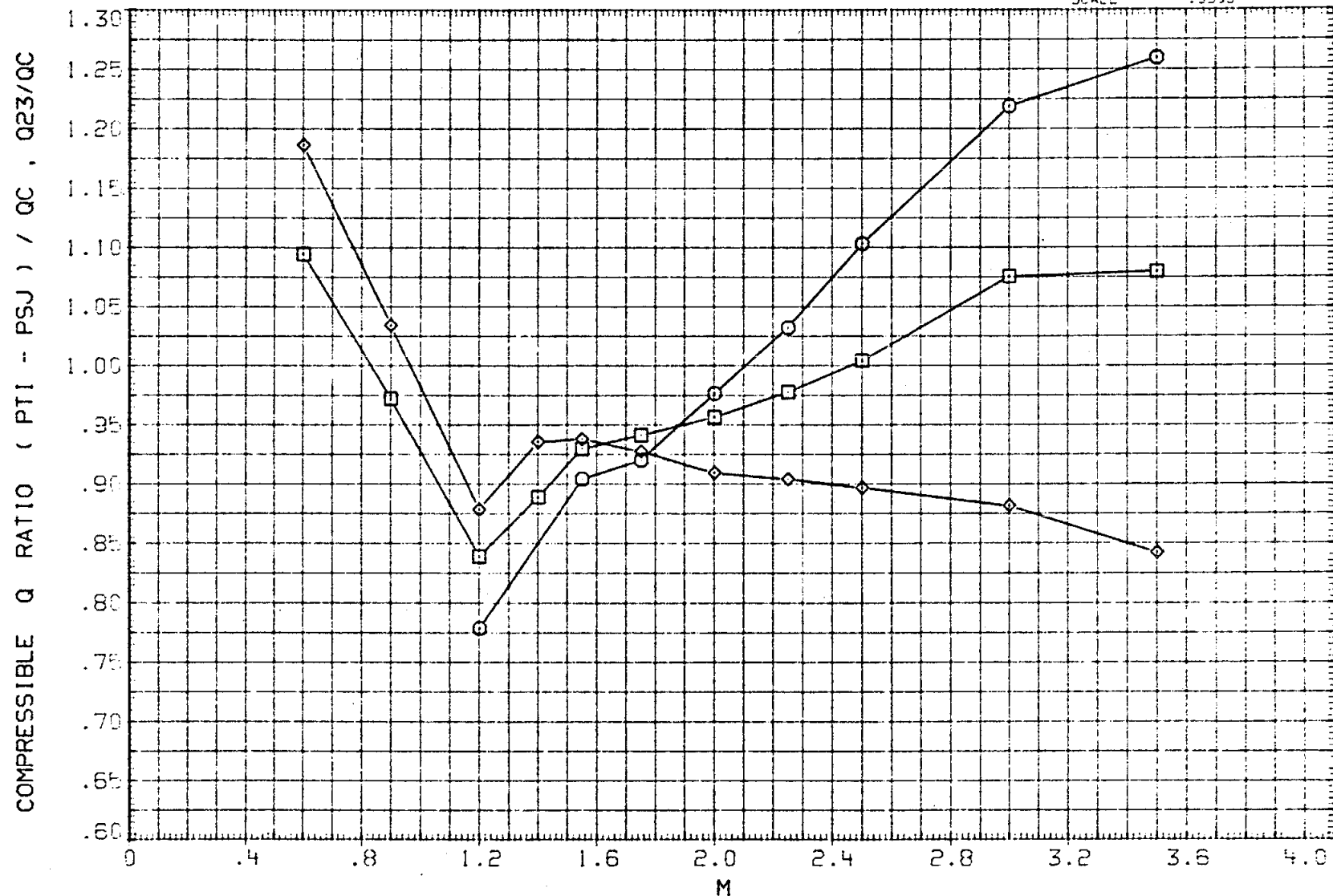


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1/QC LEFT RAKE

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
EE7803	○	ARC 11-97-87-094 CA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50. FT.
EE7805	□	ARC 11-97-87-094 CA161 ORBITER + RAKES	.000	.000	.000	-7.170	LRFP	474.8000	IN.
EE7807	◇	ARC 11-97-87-094 CA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BRFP	936.6800	IN.
EE7801	△	DATA NOT AVAILABLE	.000			-7.170	XRFP	1076.6800	IN. XO
							YRFP	.0000	IN. YO
							ZRFP	375.0000	IN. ZO
							SCALE	.0300	

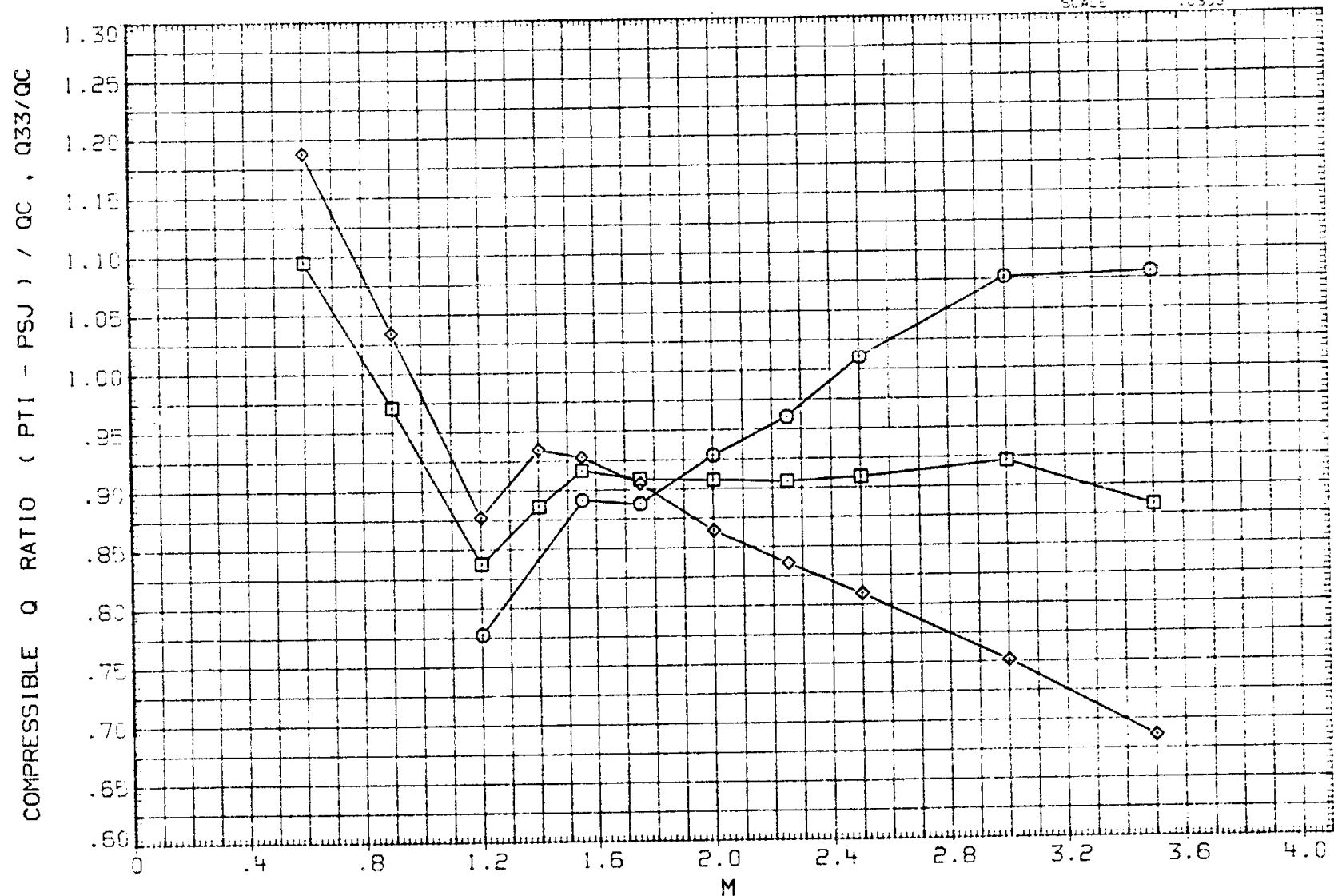


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC LEFT RAKE

(B) ALPHA = 6.00



DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
EE7B03	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
EE7B05	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
EE7B07	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
EE7B01	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000			-7.170	XMRP	1076.6800	IN. XO
						YMRP	.0000	IN. YO
						ZMRP	375.0000	IN. ZO
						SCALE	.0300	

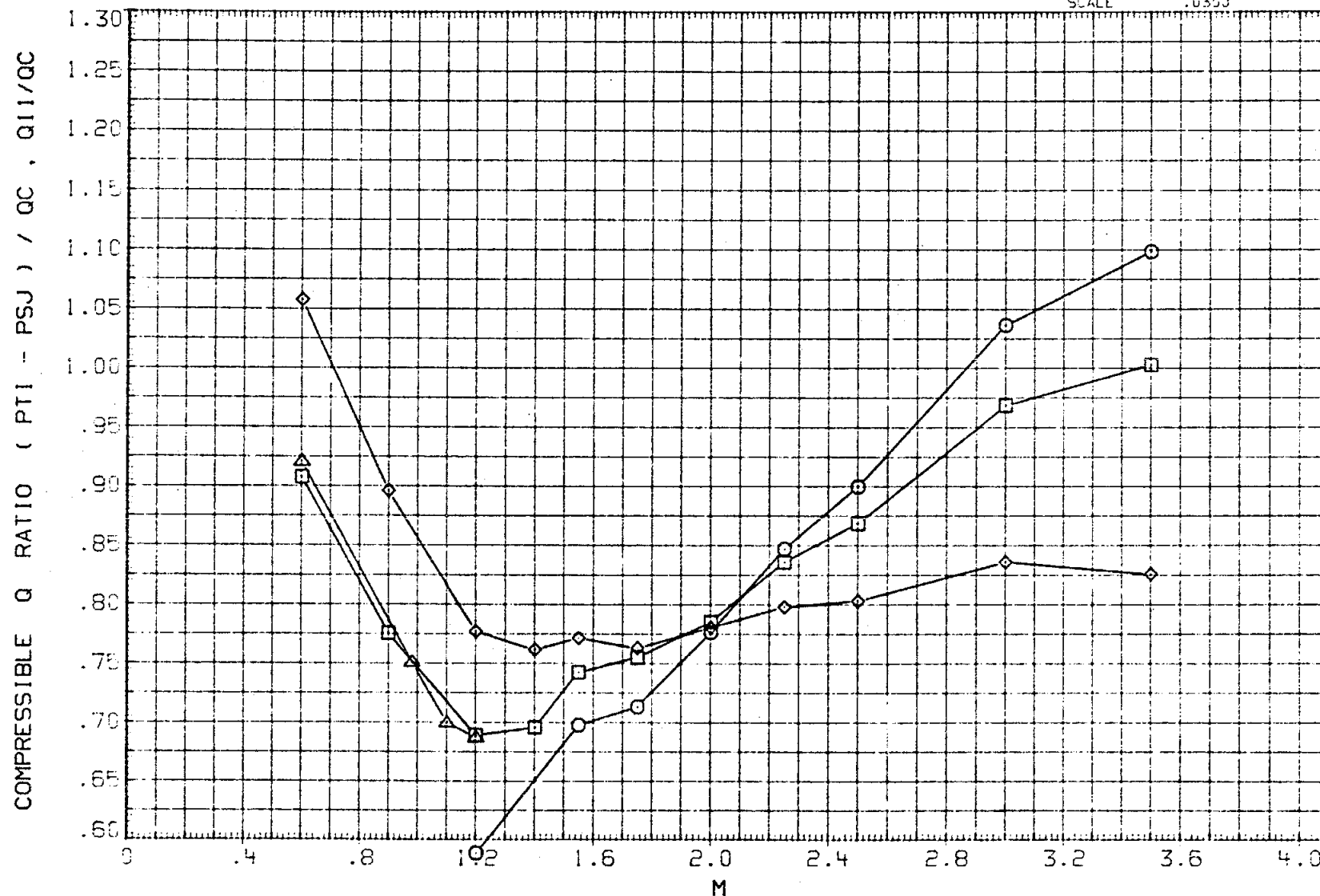


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO QI/QC LEFT RAKE

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
EE1803	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SEFF	2650.0000	50.51
EE1805	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LRFF	474.8000	IN.
EE1817	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BRFF	936.6000	IN.
EE1801	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	XMPP	1076.6000	IN. X0
						YMPP	.0000	IN. Y0
						ZMPP	375.0000	IN. Z0
						SCALE	.0000	

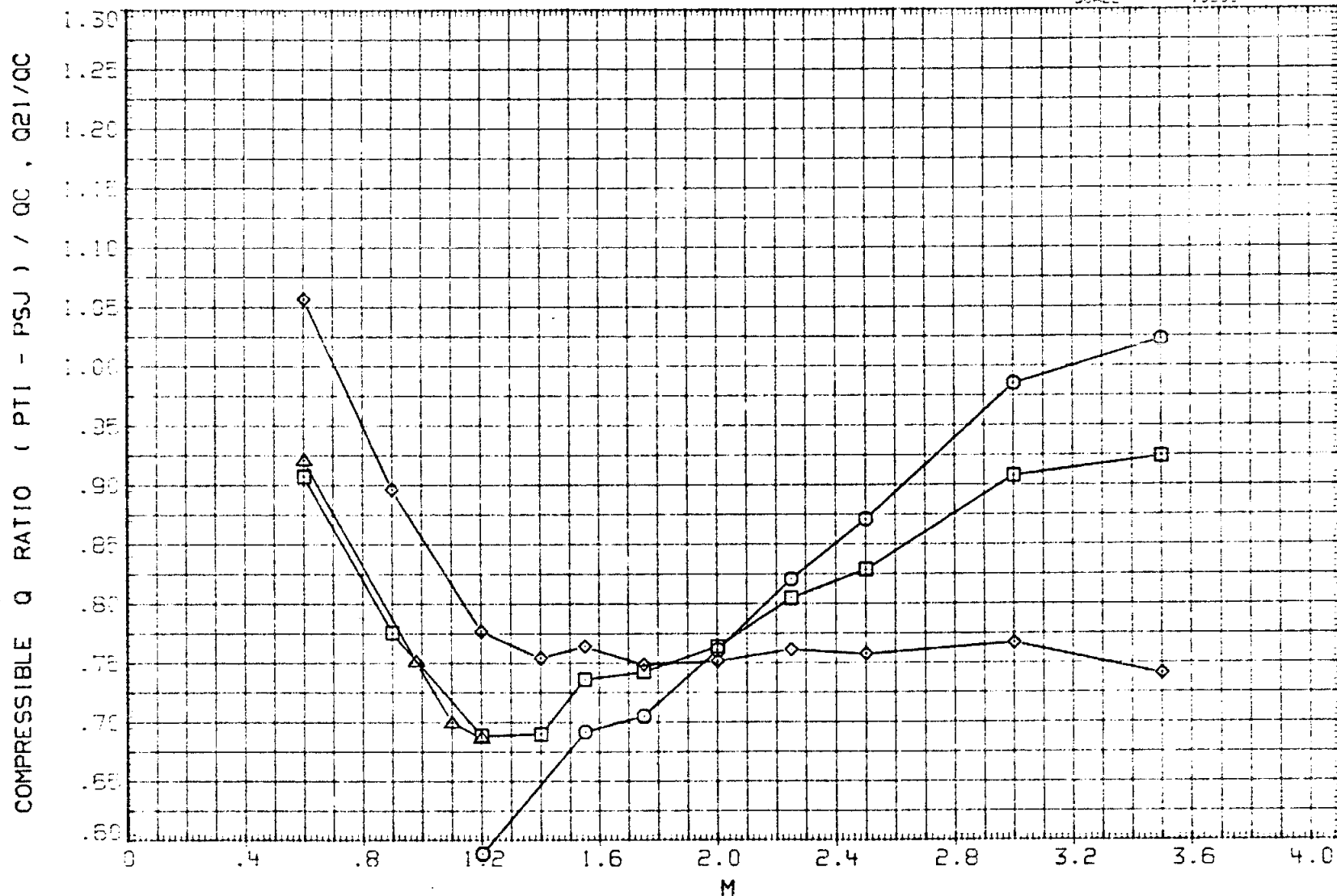


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC LEFT RAKE

(C) ALPHA = 12.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION	
EE7803	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000 SQ.FT.
EE7805	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000 IN.
EE7807	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800 IN.
EE7801	△	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000			-7.170	XMRP	1076.6800 IN. XO
							YMRP	.0000 IN. YO
							ZMRP	375.0000 IN. ZO
							SCALE	.0300

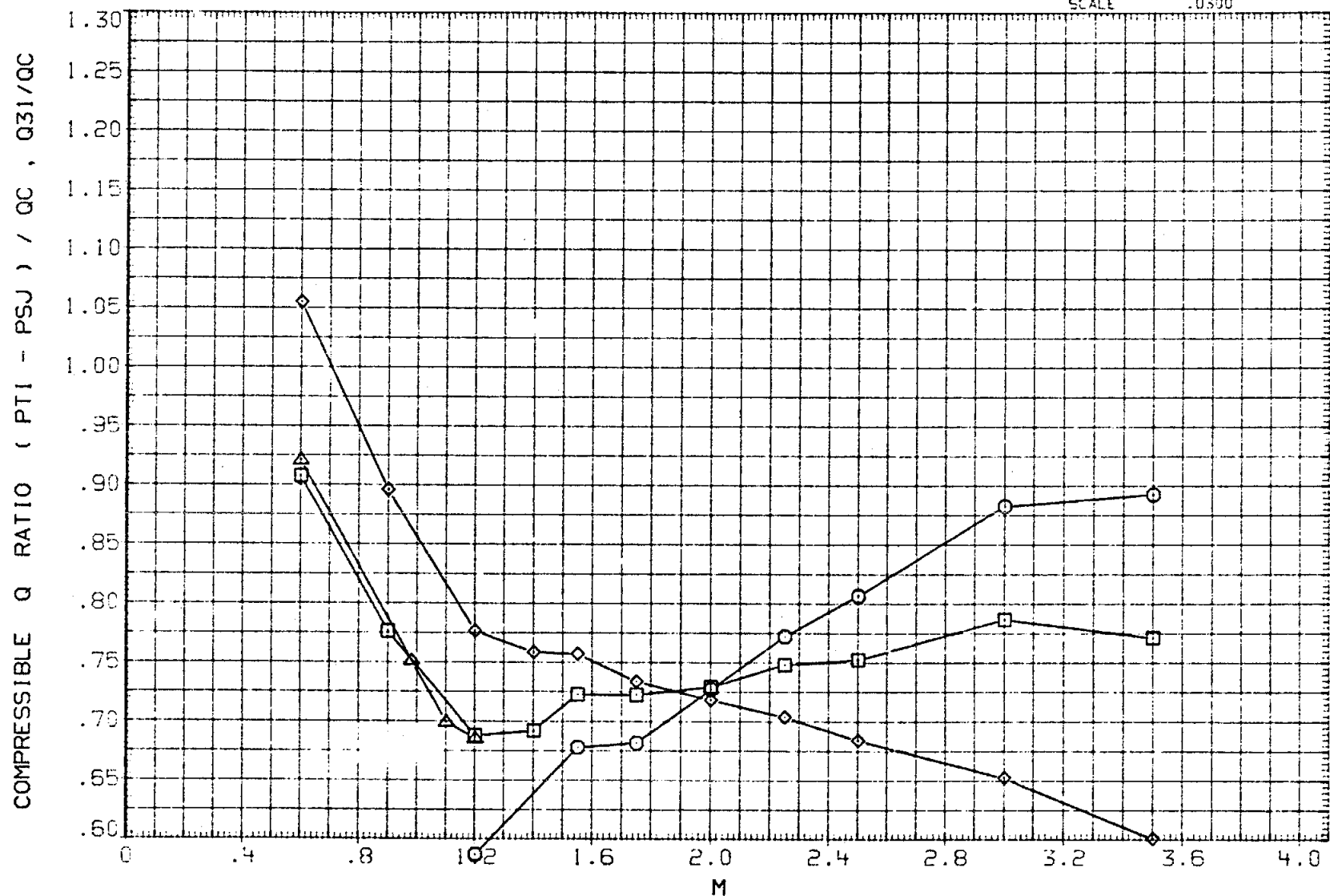


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC LEFT RAKE

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BH LAP	REFERENCE INFORMATION		
FEED05	○	ARC 11-97-87-094 04161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2695.0000	50. FT.
FEED06	□	ARC 11-97-87-094 04161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.0000	IN.
FEED07	◇	ARC 11-97-87-094 04161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6000	IN.
FEED08	△	ARC 11-97-87-094 04161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	YMPP	1076.6000	IN. XO
							YMPP	.0000	IN. YO
							ZMPP	75.0000	IN. ZO
							SCALE	.0300	

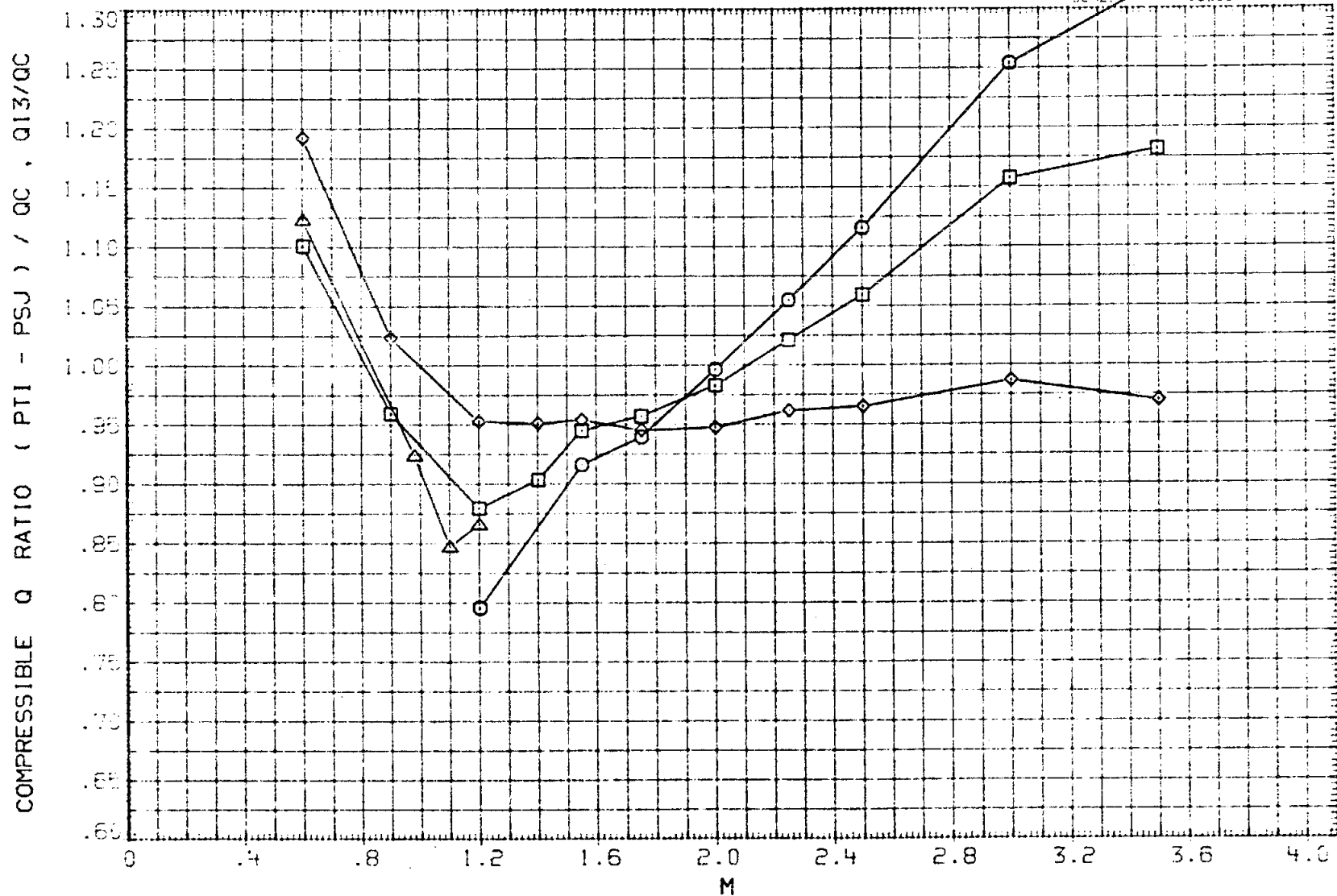


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO QI1/QC LEFT RAKE

(C) ALPHA = 12.00

DATA SET SYMBOL		CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
EE7803	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SG.FT.
EE7805	□	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
EE7807	◇	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	935.8200	IN.
EE7801	△	ARC 11-97-87-094 0A161 ORBITER - WING + RAKES	.000			-7.170	XMWP	1076.6800	IN. XO
							YMWP	.0000	IN. YO
							ZMWP	375.0000	IN. ZO
							SCALE	.0000	

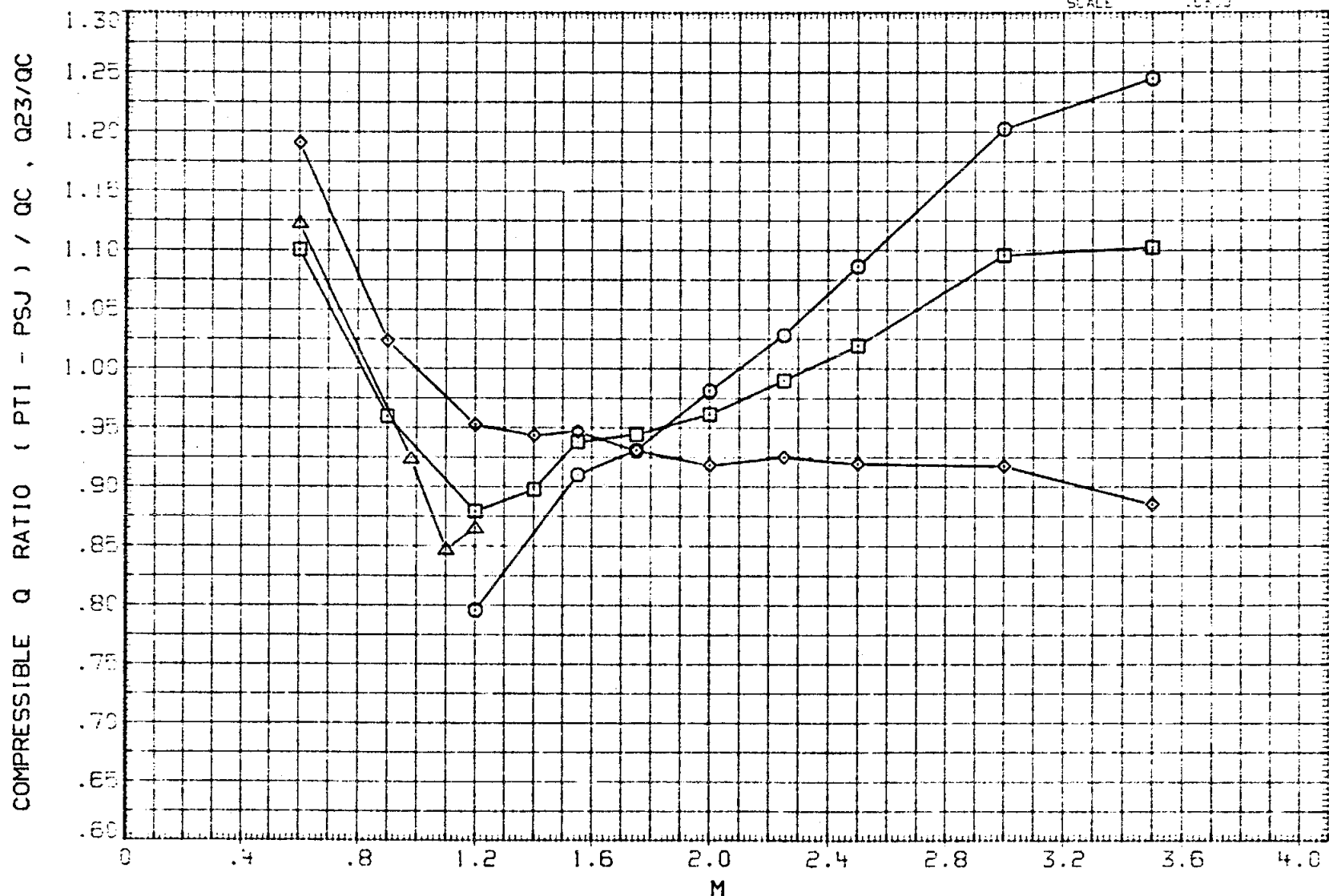


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO QIJ/QC LEFT RAKE

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
EE7803	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SPRF	2630.0000	50. FT.
EE7805	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LRPF	474.8000	IN.
EE7807	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BRPF	935.0000	IN.
EE7801	△	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	XMRP	1076.6500	IN. X0
							YMRP	.0000	IN. Y0
							ZMRP	375.0000	IN. Z0
							SCALE	.0000	

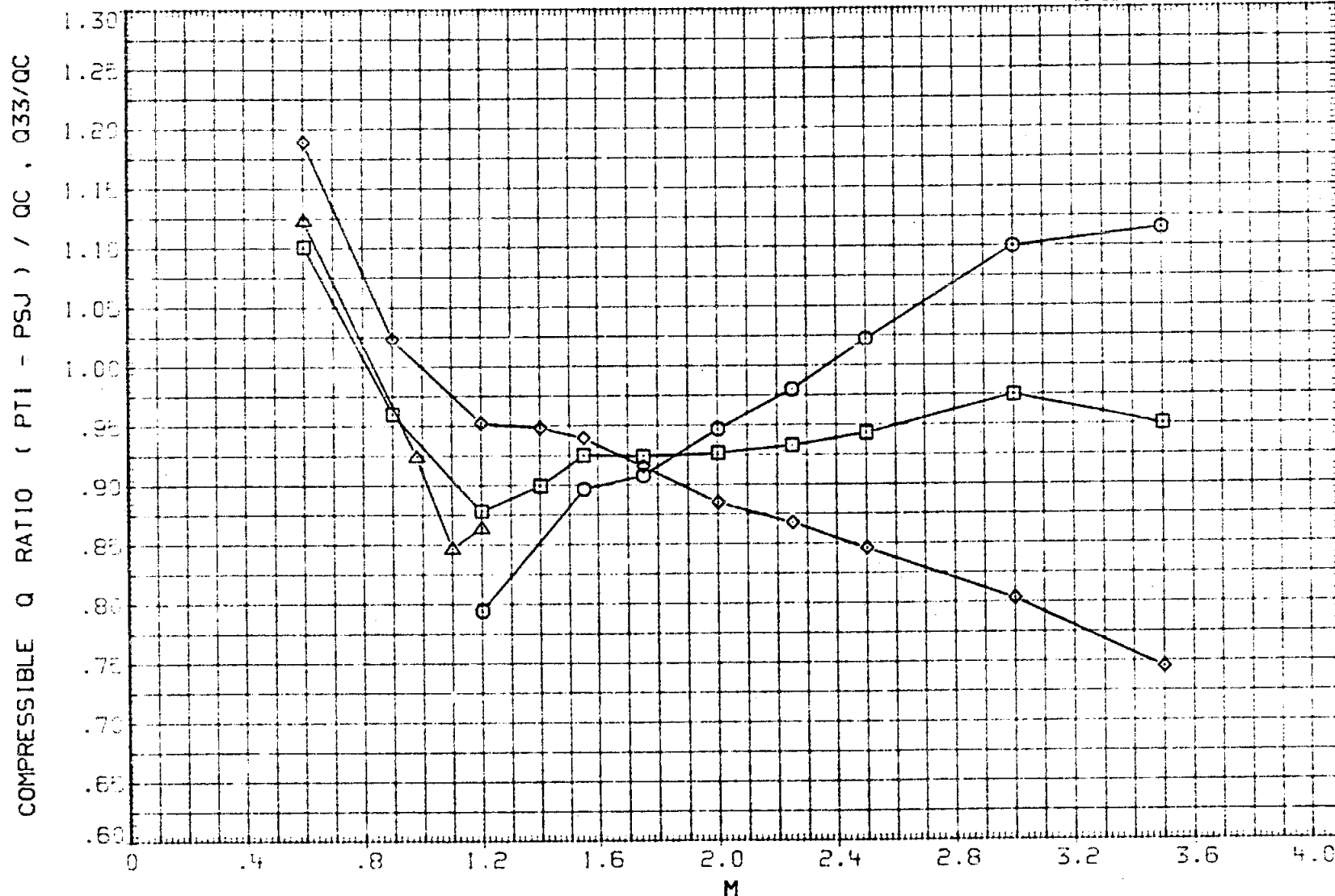


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC LEFT RAKE

(C) ALPHA = 12.00

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION	
EE7803	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000 SQ.FT.
EE7805	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.6000 IN.
EE7807	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6000 IN.
EE7801	DATA NOT AVAILABLE	.000			-7.170	XMRP	1076.6900 IN. XO
						YMRP	.0000 IN. YO
						ZMRP	375.0000 IN. ZO
						SCALE	.0300

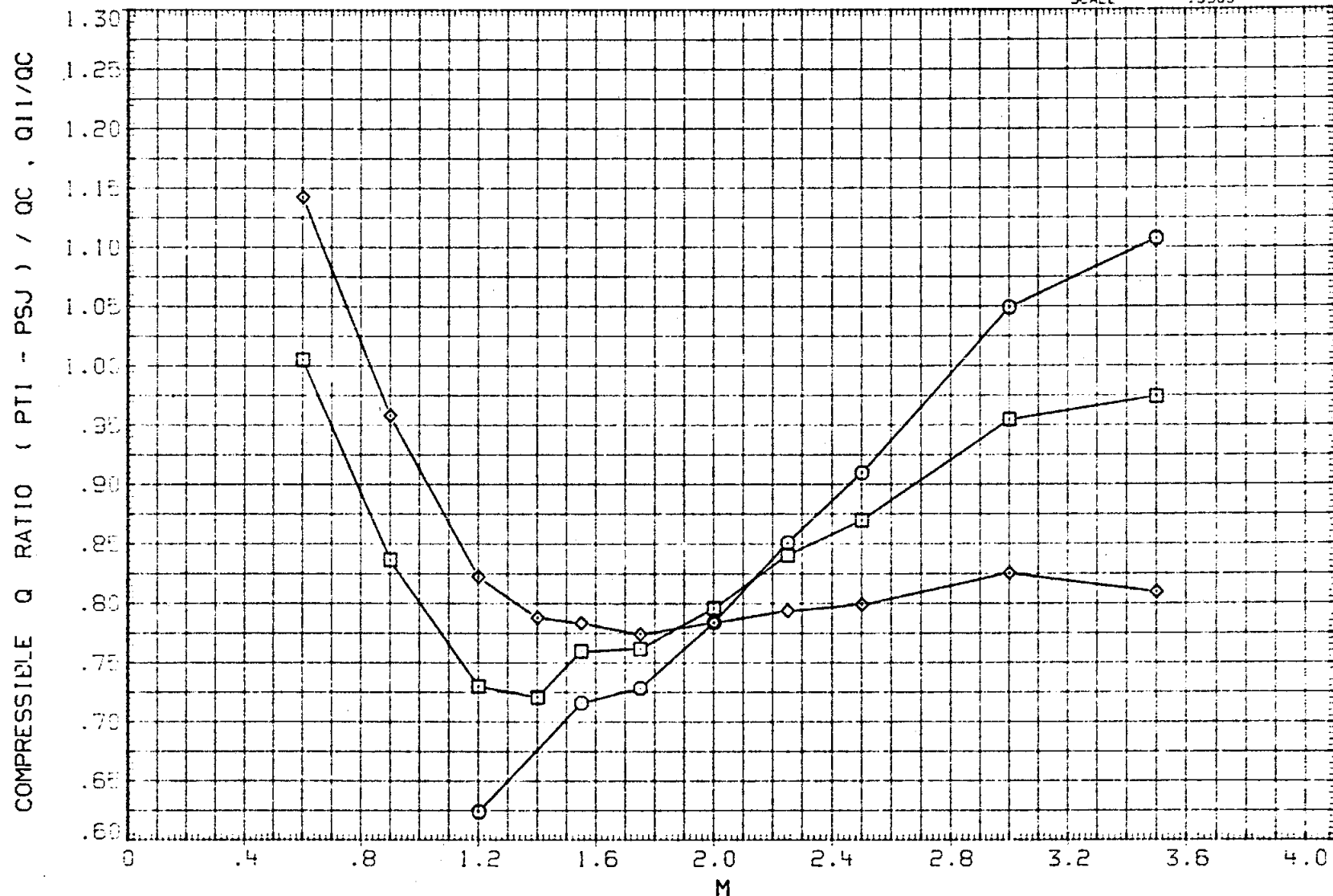


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO QI/QC LEFT RAKE

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDM AF	REFERENCE INFORMATION		
FE8803	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SPE1	2690.0000	50. FT.
FE8803	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LRPF	474.8000	IN.
FE8803	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BALF	936.0000	IN.
FE8803	△	DATA NOT AVAILABLE	.000			-7.170	XMRP	1076.6000	IN. X0
							YMRP	.0000	IN. Y0
							ZMRP	375.0000	IN. Z0
							SCALE	.0500	

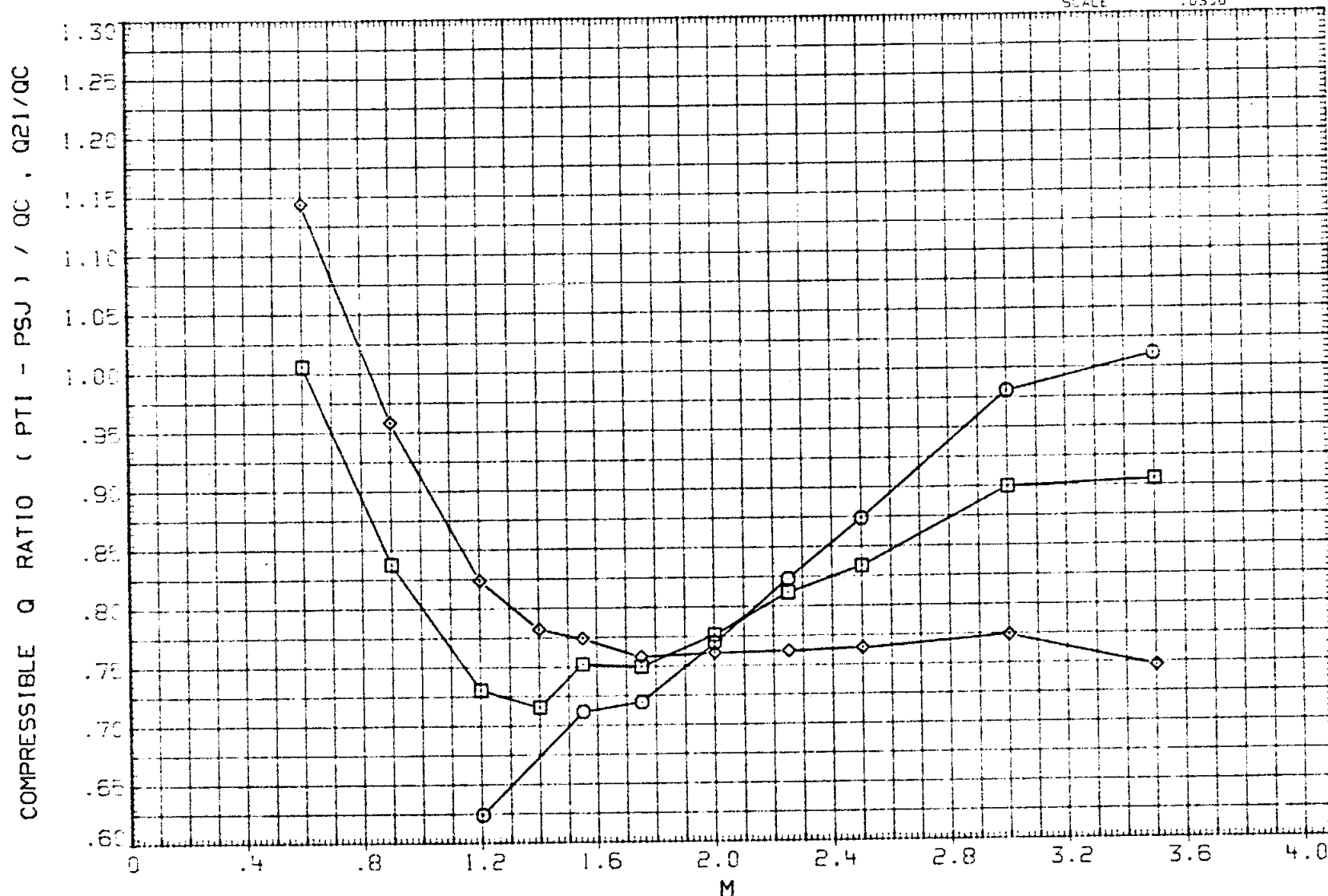


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC LEFT RAKE

(D) ALPHA = 18.00



DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
EE7803	○	ARC 11-97-87-094 0A161 ORBITER • RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50.FT.
EE7805	□	ARC 11-97-87-094 0A161 ORBITER • RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
EE7807	◇	ARC 11-97-87-094 0A161 ORBITER • RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
EE7801	△	DATA NOT AVAILABLE	.000			-7.170	XMRP	1076.6900	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0500	

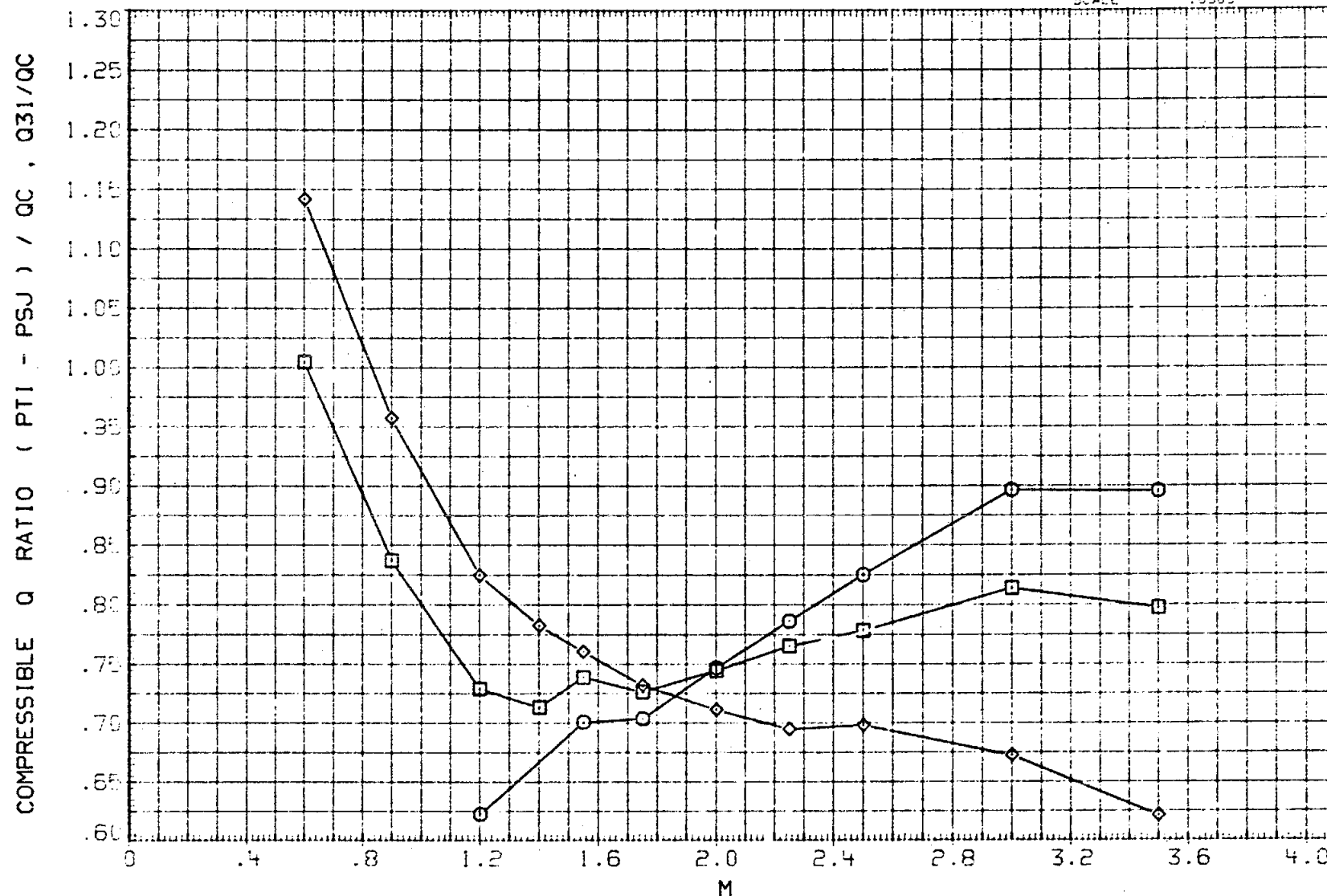


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1/QC LEFT RAKE

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDPLAF	REFERENCE INFORMATION		
EE7803	ARC 11-97-87-094 0A161 ORBITER * RAKES	-5.000	.000	.000	-7.170	SRFF	2690.0000	50. FT.
EE7805	ARC 11-97-87-094 0A161 ORBITER * RAKES	.000	.000	.000	-7.170	LRFF	474.0000	IN.
EE7807	ARC 11-97-87-094 0A161 ORBITER * RAKES	5.000	.000	.000	-7.170	BRFF	936.6900	IN.
EE7801	DATA NOT AVAILABLE	.000	.000	.000	-7.170	YMPP	1075.6800	IN. YO
						YNPP	.0000	IN. YO
						ZMPP	375.0000	IN. ZO
						SCALE	.0300	

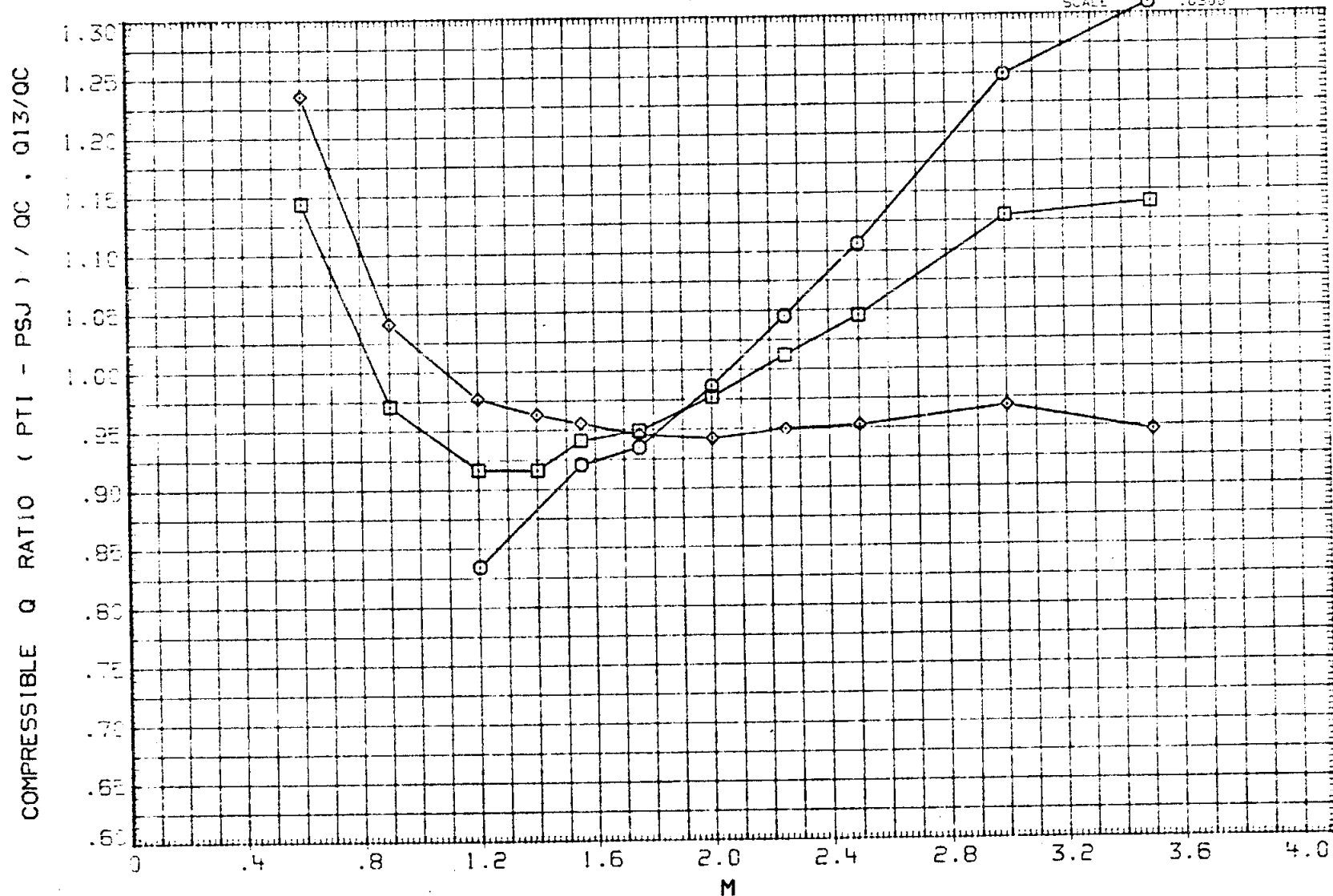


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC LEFT RAKE

(D) ALPHA = 18.00

DATA SET SYMBOL	CONFIGURATION
EE7803 ○	ARC 11-97-87-094 OA161 ORBITER + RAKES
EE7805 □	ARC 11-97-87-094 OA161 ORBITER + RAKES
EE7807 ◇	ARC 11-97-87-094 OA161 ORBITER + RAKES
EE7801 △	DATA NOT AVAILABLE

BETA	ELEVON	AILRON	BDFLAP
-5.000	.000	.000	-7.170
.000	.000	.000	-7.170
5.000	.000	.000	-7.170
.000			

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	925.6800	IN.
XMPP	1076.6800	IN. X0
YMPP	.0000	IN. Y0
ZMPP	375.0000	IN. Z0
SCALE	.0000	

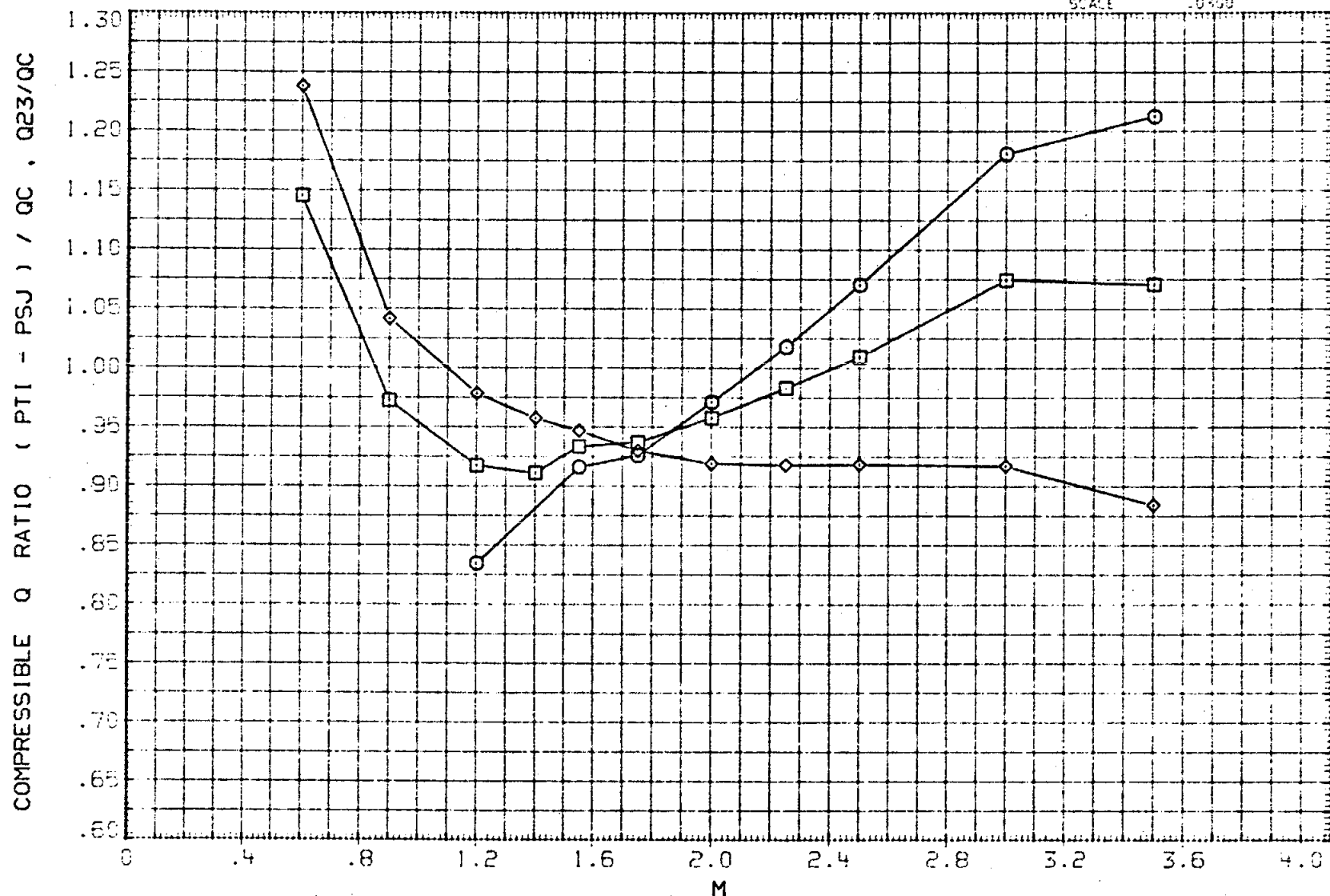


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC LEFT RAKE

(D) ALPHA = 18.00

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	EDLAP	REFERENCE INFORMATION		
EE7H03	ARC 11-97-87-094 CA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50.00
EE7H05	ARC 11-97-87-094 CA161 ORBITER + RAKES	.000	.000	.000	-7.170	LRPF	478.0000	IN.
EE7H07	ARC 11-97-87-094 CA161 ORBITER + RAKES	5.000	.000	.000	-7.170	PRPF	926.0000	IN.
EE7H01	DATA NOT AVAILABLE	.000				VMSP	1076.0000	IN. X0
						VMSP	.0000	IN. Y0
						VMSP	375.0000	IN. Z0
						SCALE	.0300	

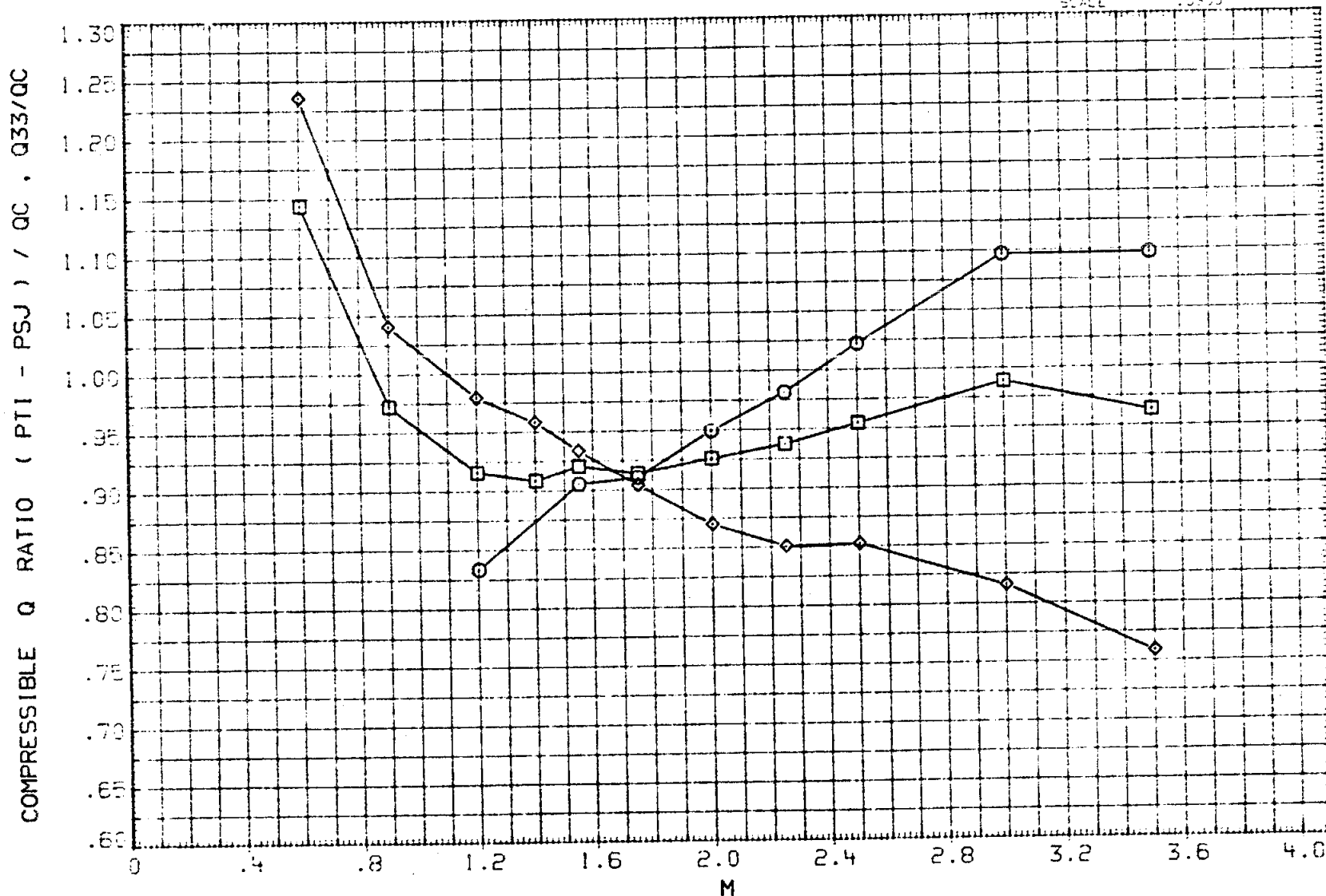


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC LEFT RAKE

(D) ALPHA = 18.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
EE7803	○	ARC 11-97-87-094 CA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
EE7805	□	ARC 11-97-87-094 CA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.0000	IN.
EE7807	◇	ARC 11-97-87-094 CA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	935.6800	IN.
EE7801	△	ARC 11-97-87-094 CA161 ORBITER - WING + RAKES	.000			-7.170	XMPP	1076.6800	IN. X0
							YMPP	.0000	IN. Y0
							ZMPP	375.0000	IN. Z0
							SCALE	.0300	

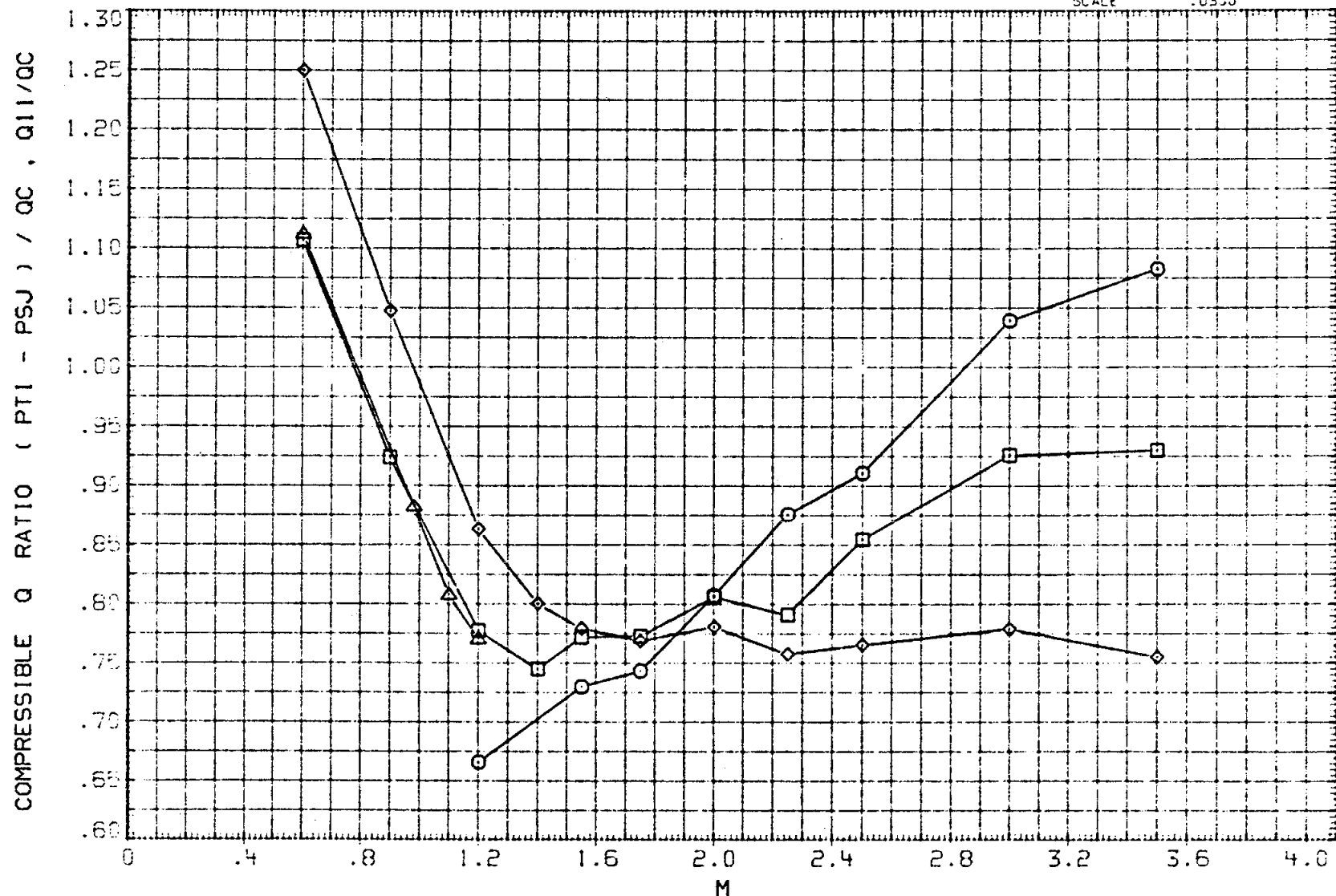


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO QI/QC LEFT RAKE

DATA SET SYMBOL		CONFIGURATION	BETA	ELEVON	AILRON	BOULAP	REFERENCE INFORMATION		
FE7803	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50. FT.
FE7805	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
FE7807	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6000	IN.
FE7801	△	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	WMRP	1076.6000	IN. X0
							YMRP	.0000	IN. Y0
							ZMRP	375.0000	IN. Z0
							SCALE	.0000	

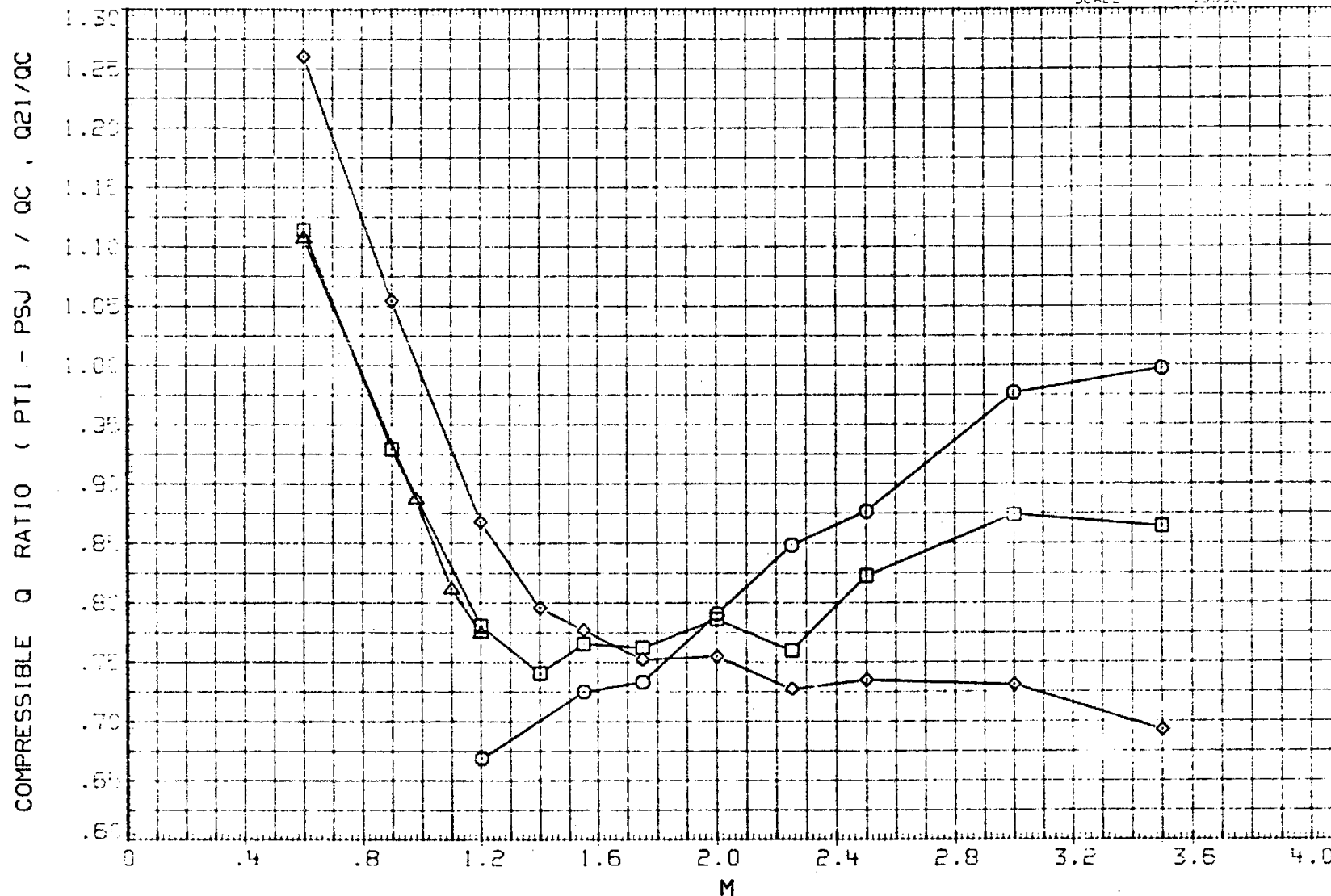


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1/QC LEFT RAKE

(E) ALPHA = 24.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
EE7B03	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50.FT.
EE7B05	◇	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
EE7B07	□	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
EE7B01	△	ARC 11-97-87-094 0A161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	575.0000	IN. ZO
							SCALE	.0000	

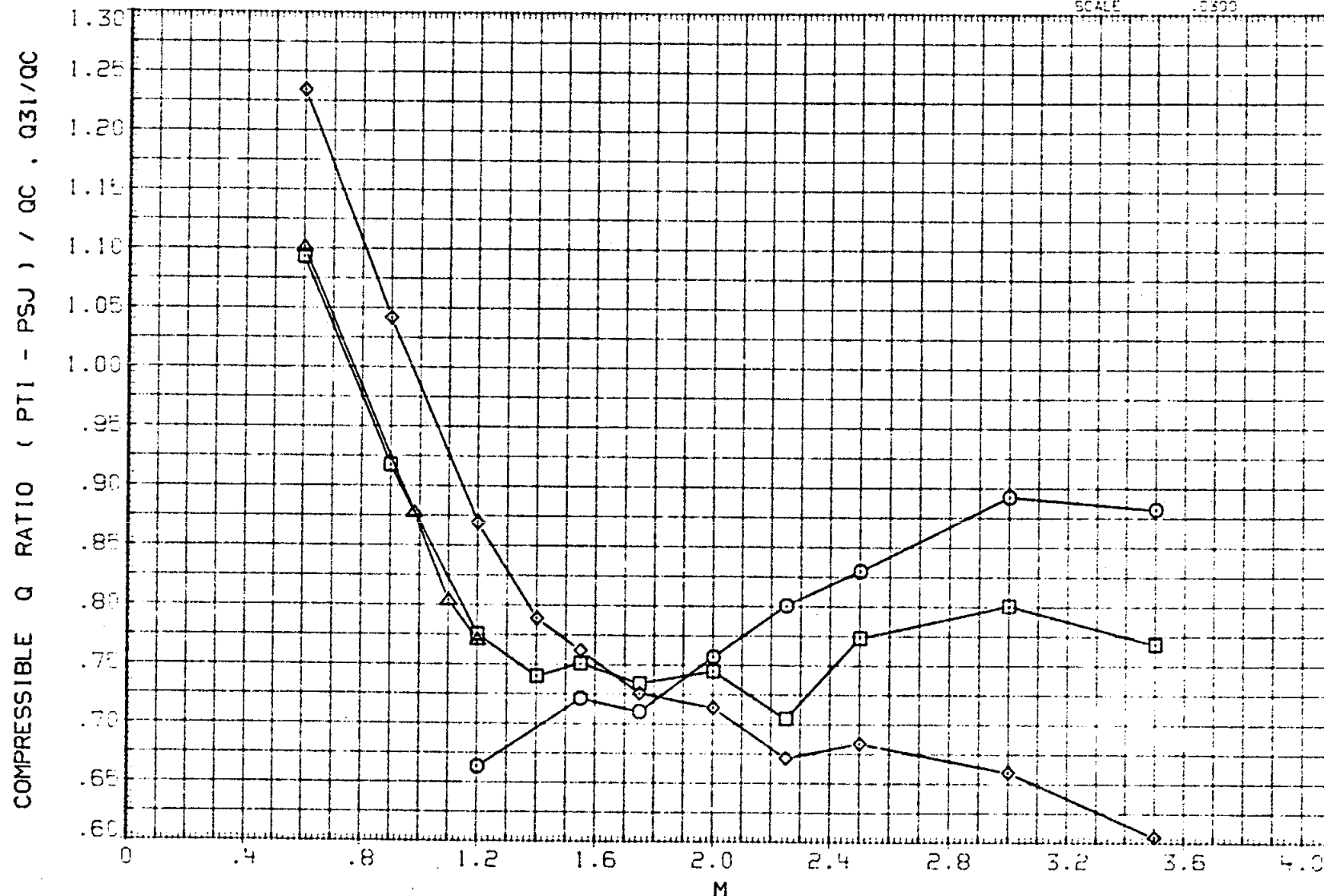


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO  $Q1/QC$  LEFT RAKE

(E) ALPHA = 24.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDRFT	REFERENCE INFORMATION	
001	ARC 11-97-87-094	OA161 ORBITER * RAKES	-5.000	.000	.000	-7.170	SPR1	2880.0000 SQ.FT.
002	ARC 11-97-87-094	OA161 ORBITER * RAKES	.000	.000	.000	-7.170	LREF	474.9000 IN.
003	ARC 11-97-87-094	OA161 ORBITER * RAKES	5.000	.000	.000	-7.170	BREF	930.8000 IN.
004	ARC 11-97-87-094	OA161 ORBITER * RAKES	.000	.000	.000	-7.170	YMPP	1070.6000 IN. X0
							VMPP	.0000 IN. X0
							ZMPP	370.0000 IN. Z0
							SCALE	.0000

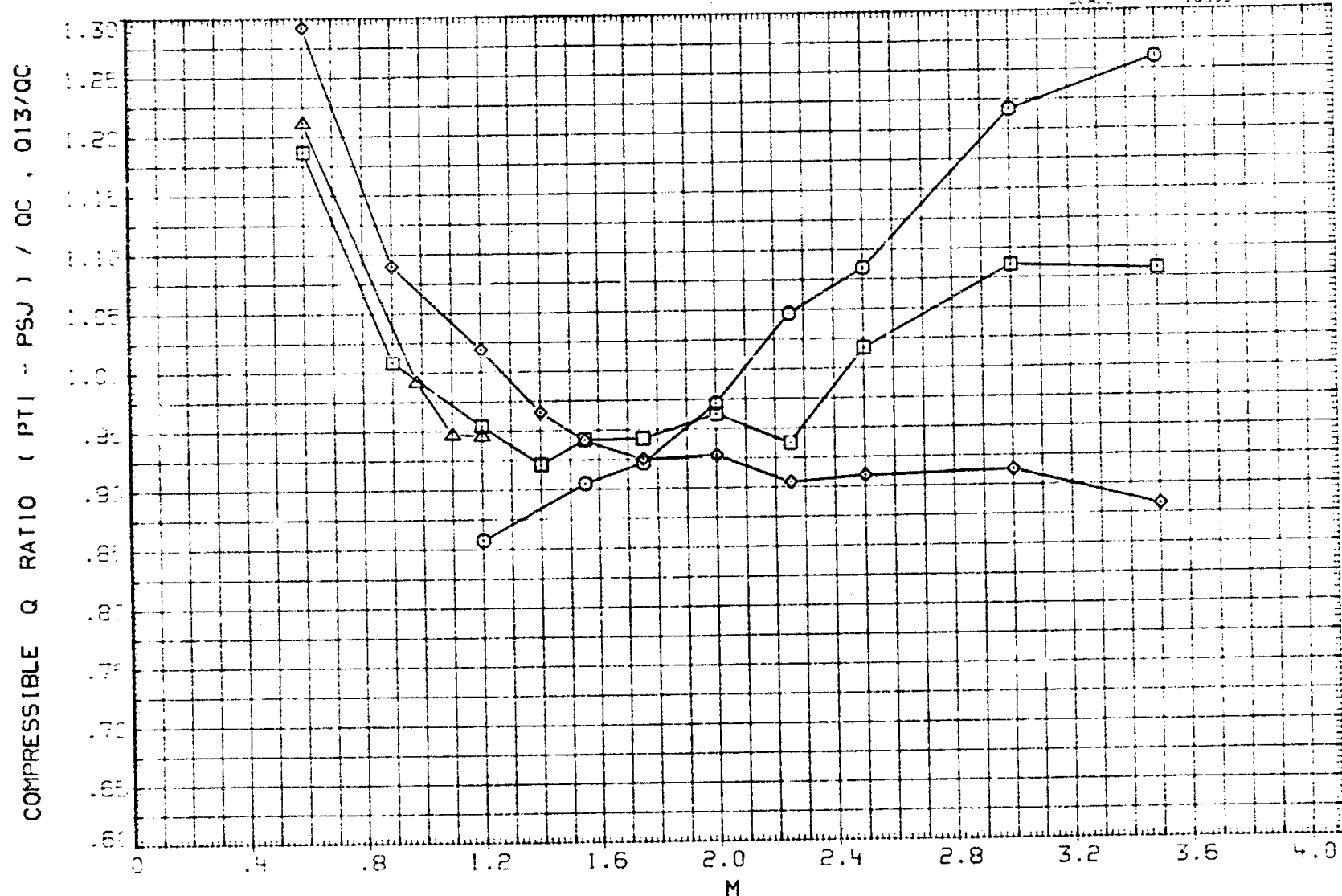


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC LEFT RAKE

(E) ALPHA = 24.00



DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BOFLAP

REFERENCE INFORMATION

0117813	○	ARC 11-97-87-094	0A161 ORBITER • RAKES	-5.000	.000	.000	-7.170
0117814	□	ARC 11-97-87-094	0A161 ORBITER • RAKES	.000	.000	.000	-7.170
0117815	△	ARC 11-97-87-094	0A161 ORBITER • RAKES	5.000	.000	.000	-7.170
0117816	△	ARC 11-97-87-094	0A161 ORBITER - WING • RAKES	.000			

SREF	2590.0000	SQ.FT.
LREF	474.8000	IN.
BREF	335.6000	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	775.0000	IN. ZO
SCALE	.0300	

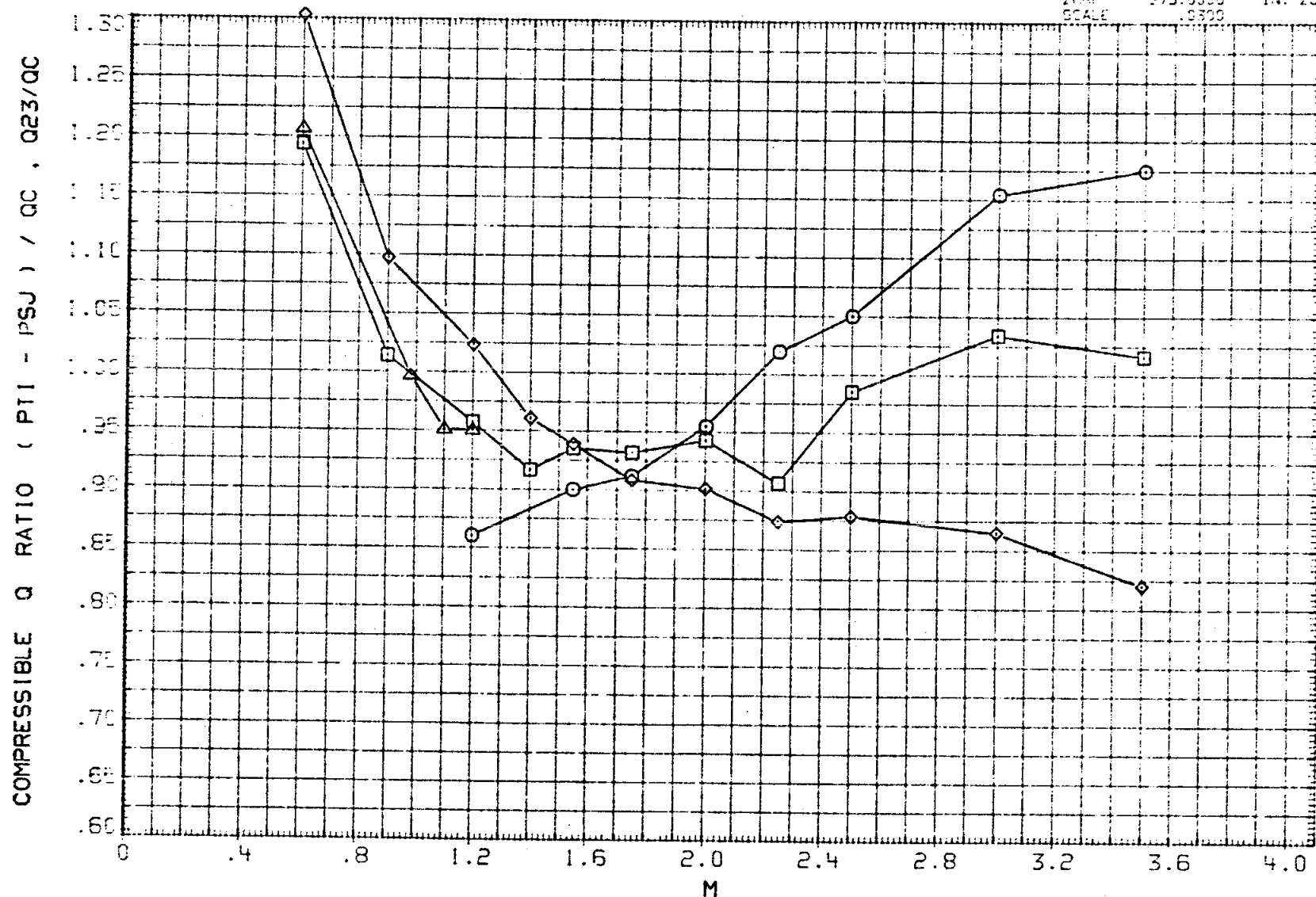


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC LEFT RAKE

BETA ALPHA = 24.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILERON	BOFLAP	REFERENCE INFORMATION		
BOFLAP	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2590.0000	50. FT.
BOFLAP	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	404.8000	IN.
BOFLAP	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	SREF	935.6800	IN.
BOFLAP	△	ARC 11-97-87-094 OA161 ORBITER + WING + RAKES	.000	.000	.000	-7.170	YMRP	1076.6800	IN. YO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

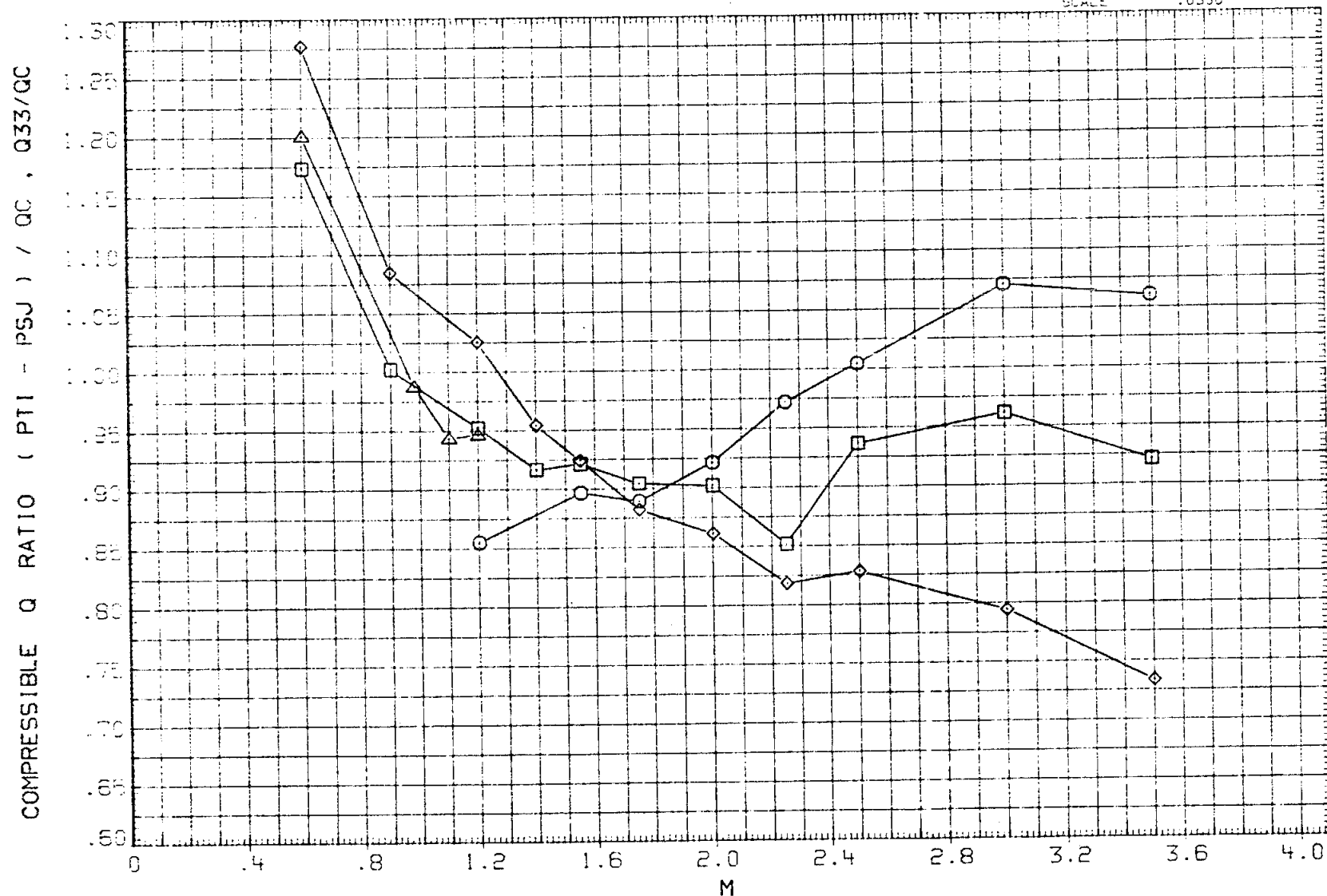


FIG. 19 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC LEFT RAKE

(BETA ALPHA = 24.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
AE7803	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
AE7805	□	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
AE7807	◇	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
AE7801	△	ARC 11-97-87-094 0A161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.9300	

DA:  
AE  
AE  
AE  
AE

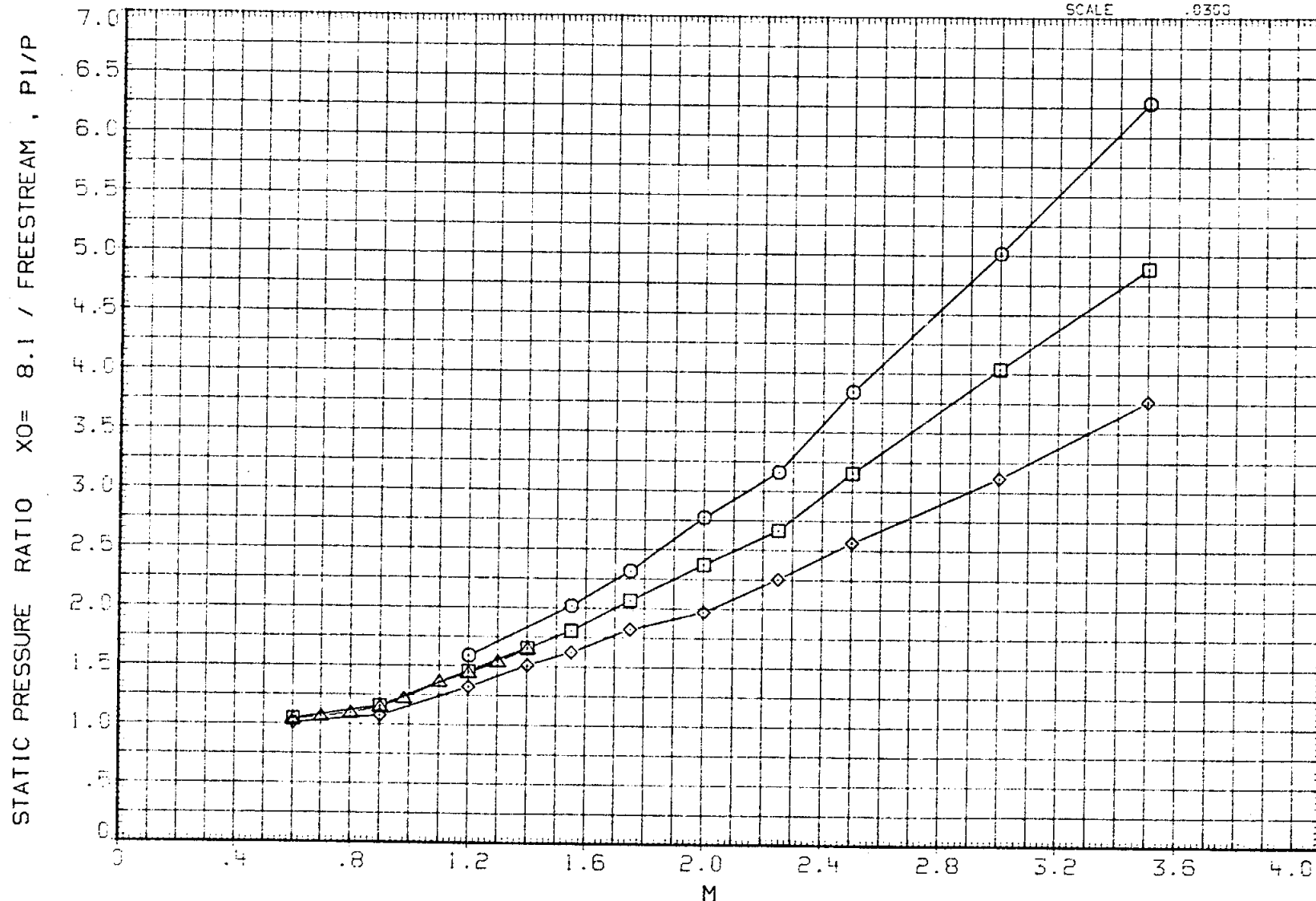


FIG. 20 EFFECT OF BETA ON STATIC PRESSURE RATIO PSJ/P LEFT RAKE

(A) ALPHA = .00

ATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION			DATA
AETB003	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50. FT.	AL
AETB005	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.	AL
AETB007	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6900	IN.	AL
AETB001	△	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	XMPP	1076.6900	IN. X0	AL
							YMPP	.0000	IN. Y0	
							ZMPP	375.0000	IN. Z0	
							SCALE	.0300		

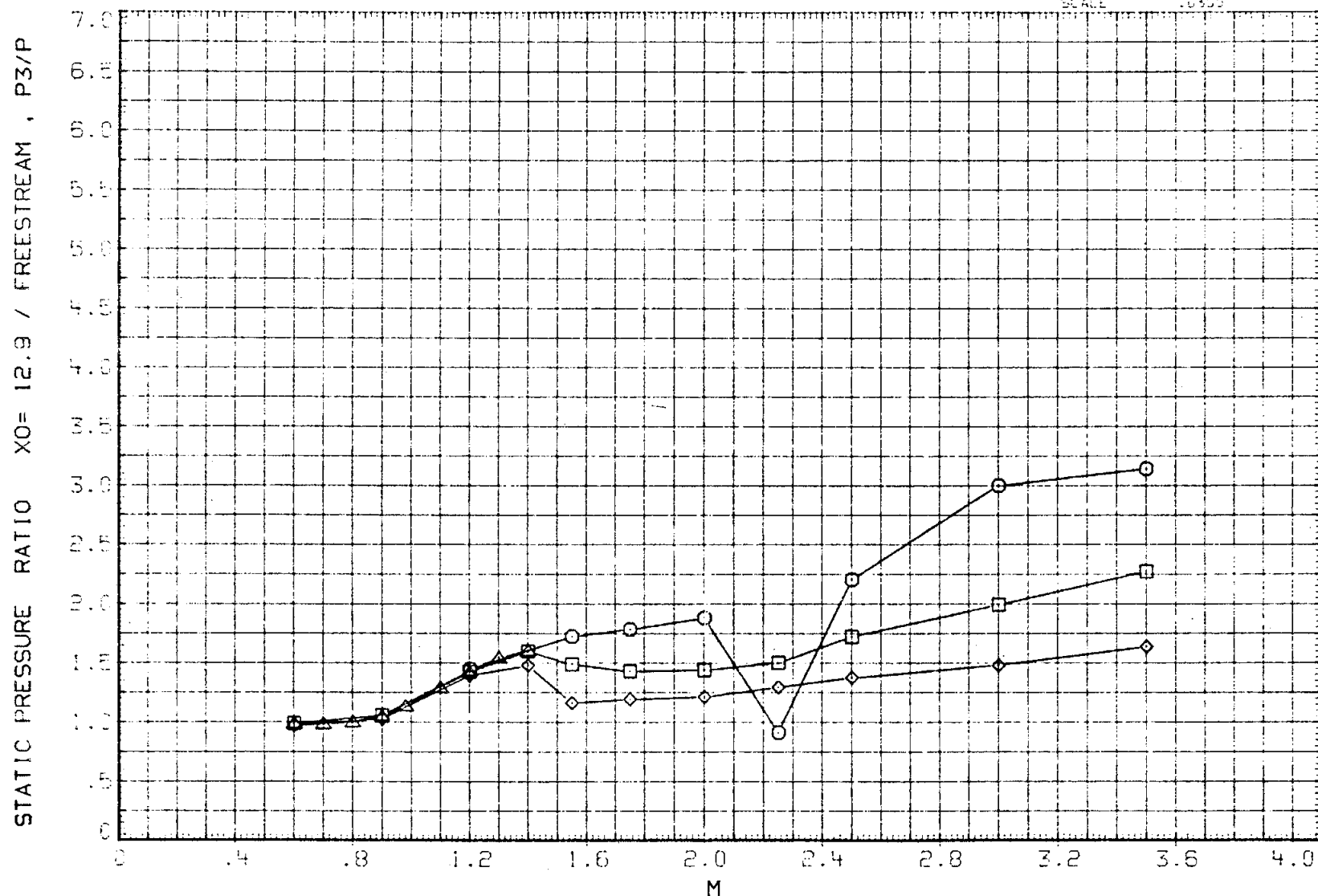


FIG. 20 EFFECT OF BETA ON STATIC PRESSURE RATIO PSJ/P LEFT RAKE

(A) ALPHA = .00

ATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION			DAT
AE7803	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50.FT.	AE
AE7805	□	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.	AE
AE7807	◇	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6300	IN.	AE
AE7801	△	DATA NOT AVAILABLE	.000			-7.170	XMRP	1076.6600	IN. XO	AE
							YMRP	.0000	IN. YO	
							ZMRP	375.0000	IN. ZO	
							SCALE	.0300		

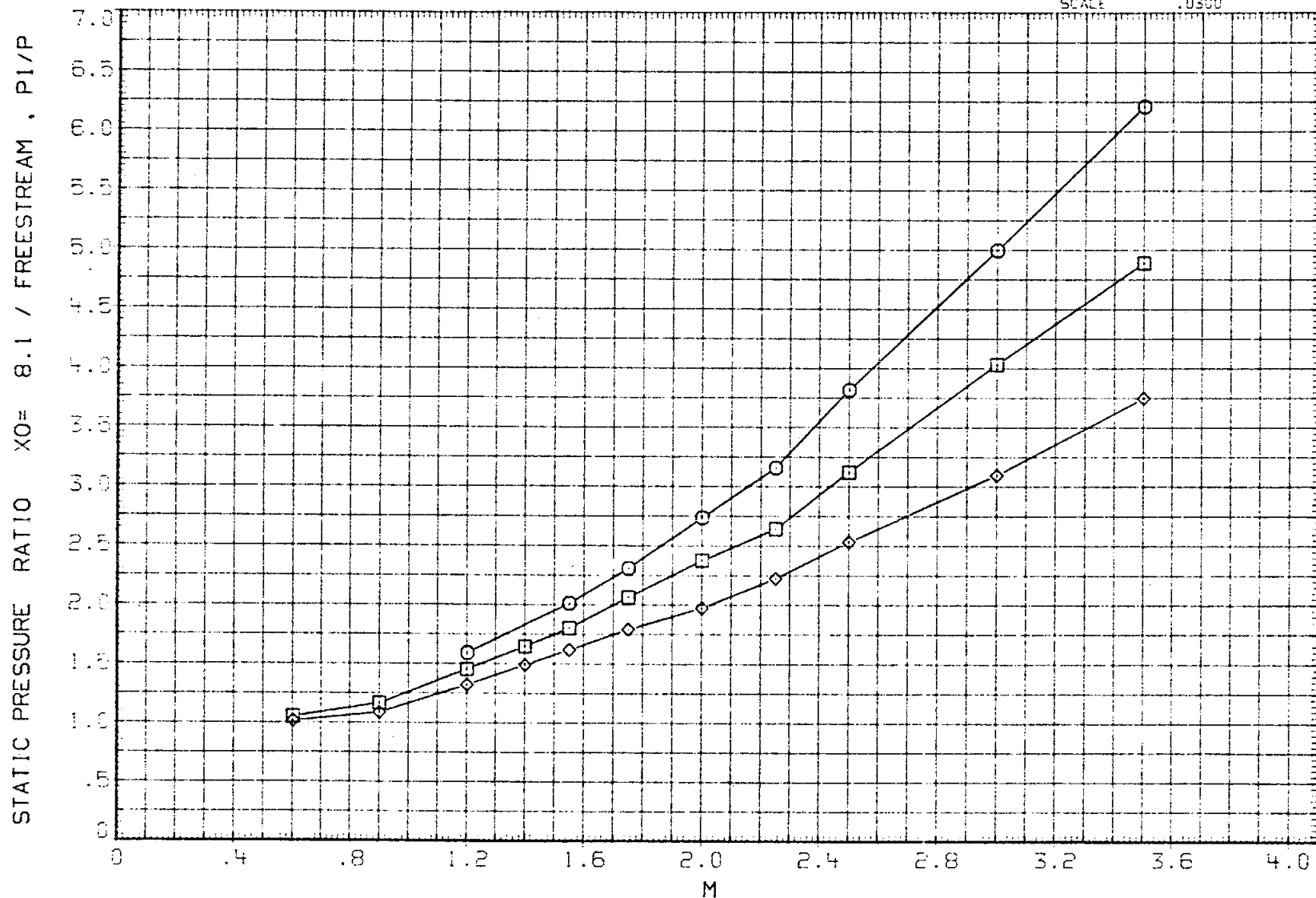


FIG. 20 EFFECT OF BETA ON STATIC PRESSURE RATIO PSJ/P LEFT RAKE

(B) ALPHA = 6.00

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION			DATA
07R03	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SO.F.F.	80
07R05	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.	80
07R07	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	935.6800	IN.	80
07R01	DATA NOT AVAILABLE	.000			-7.170	YMFP	1076.6800	IN. XO	80
						YMFP	.0000	IN. YO	
						ZMFP	375.1000	IN. ZO	
						SCALE	.0300		

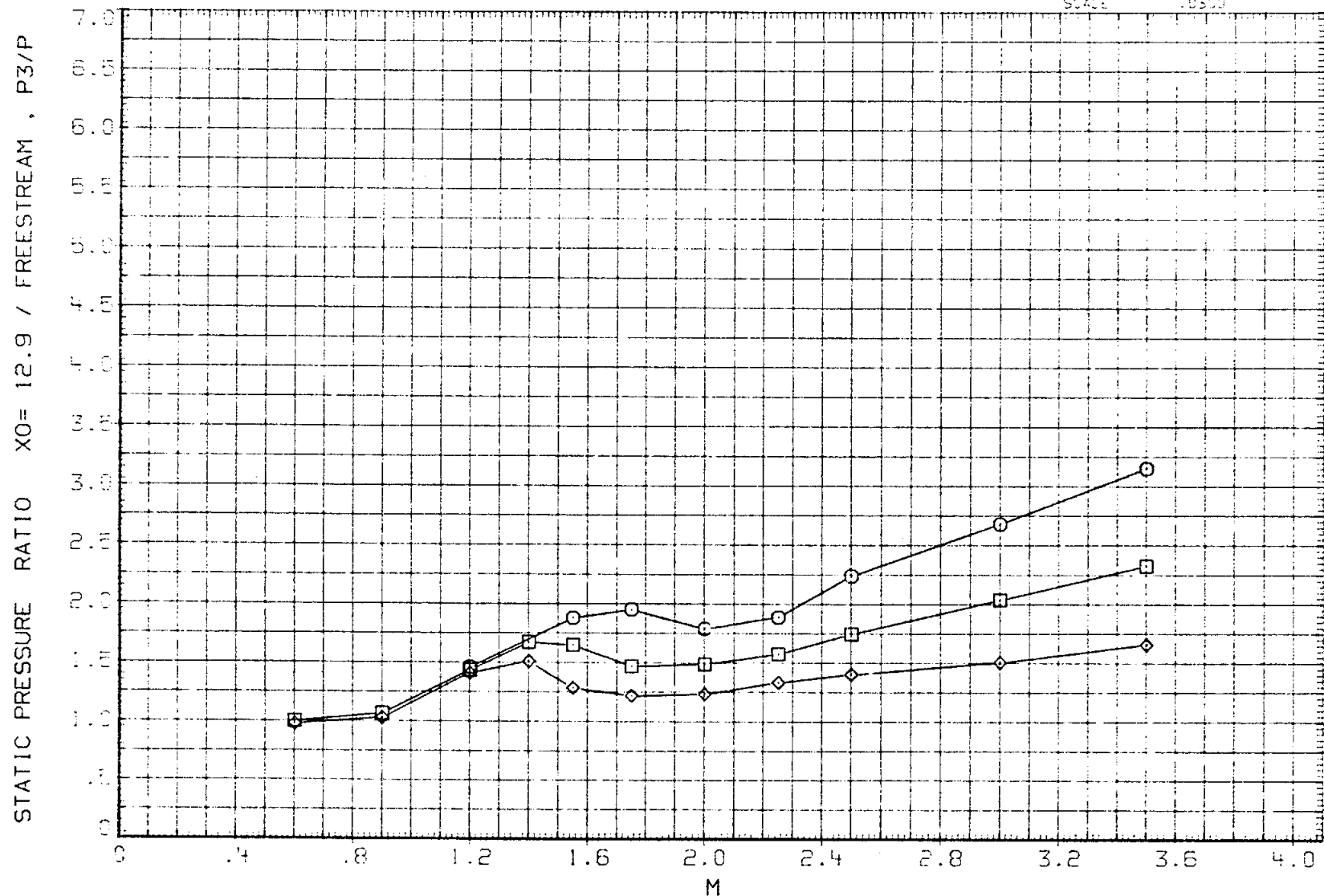


FIG. 20 EFFECT OF BETA ON STATIC PRESSURE RATIO PSJ/P LEFT RAKE

(B) ALPHA = 6.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
AE7803	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
AE7805	□	ARC 11-97-87-394 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
AE7807	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
AE7801	△	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000			-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

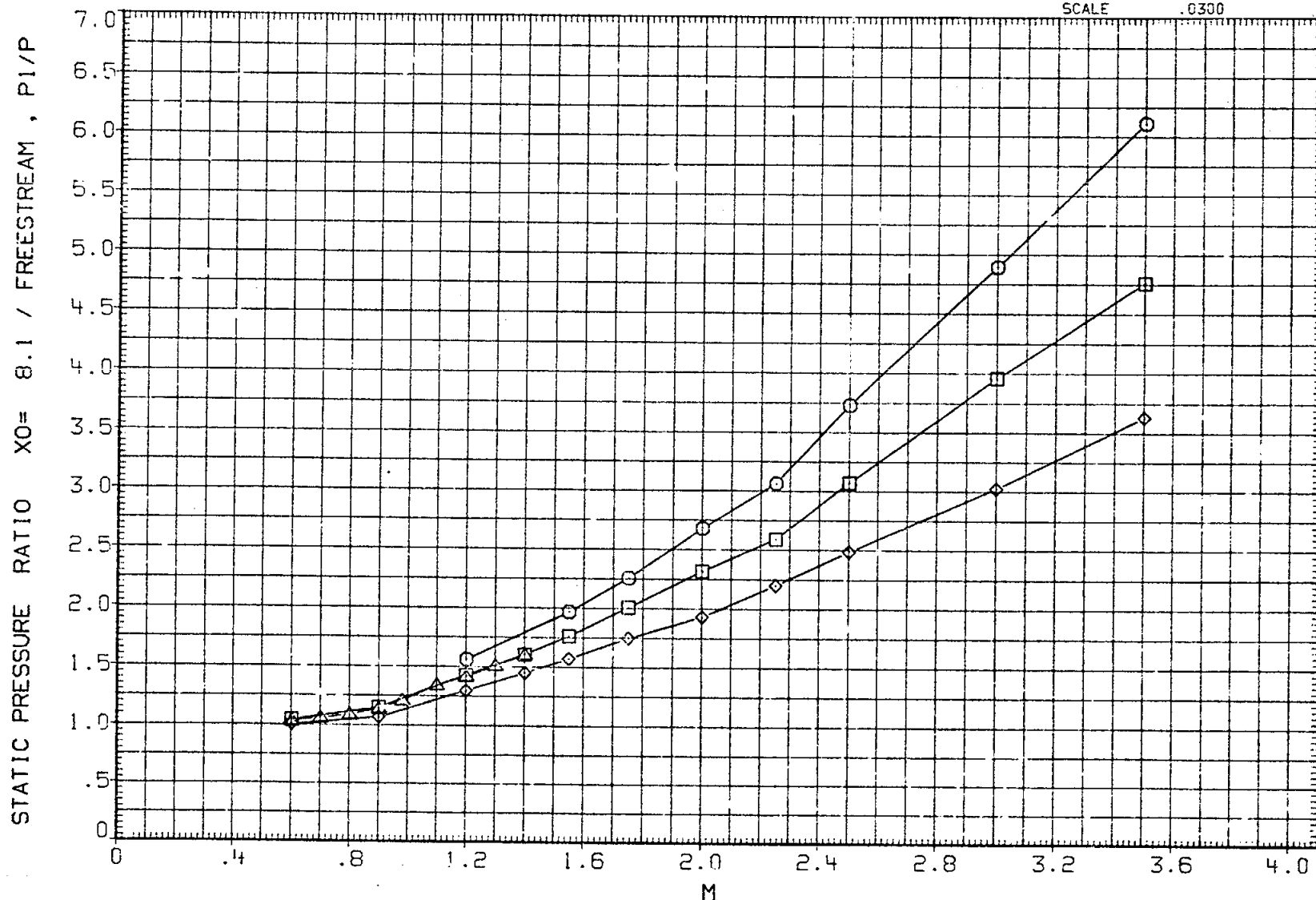


FIG. 20 EFFECT OF BETA ON STATIC PRESSURE RATIO PSJ/P LEFT RAKE

(C) ALPHA = 12.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDCLAP	REFERENCE INFORMATION		
AE7893	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	SREF	2090.0000	SQ. FT.
AE7895	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LRCP	474.8000	IN.
AE7897	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	SREF	936.6800	IN.
AE7891	△	ARC 11-97-87-094 OA161 ORBITER + WING + RAKES	.000				XMPP	1076.6800	IN. XO
							YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.9300	

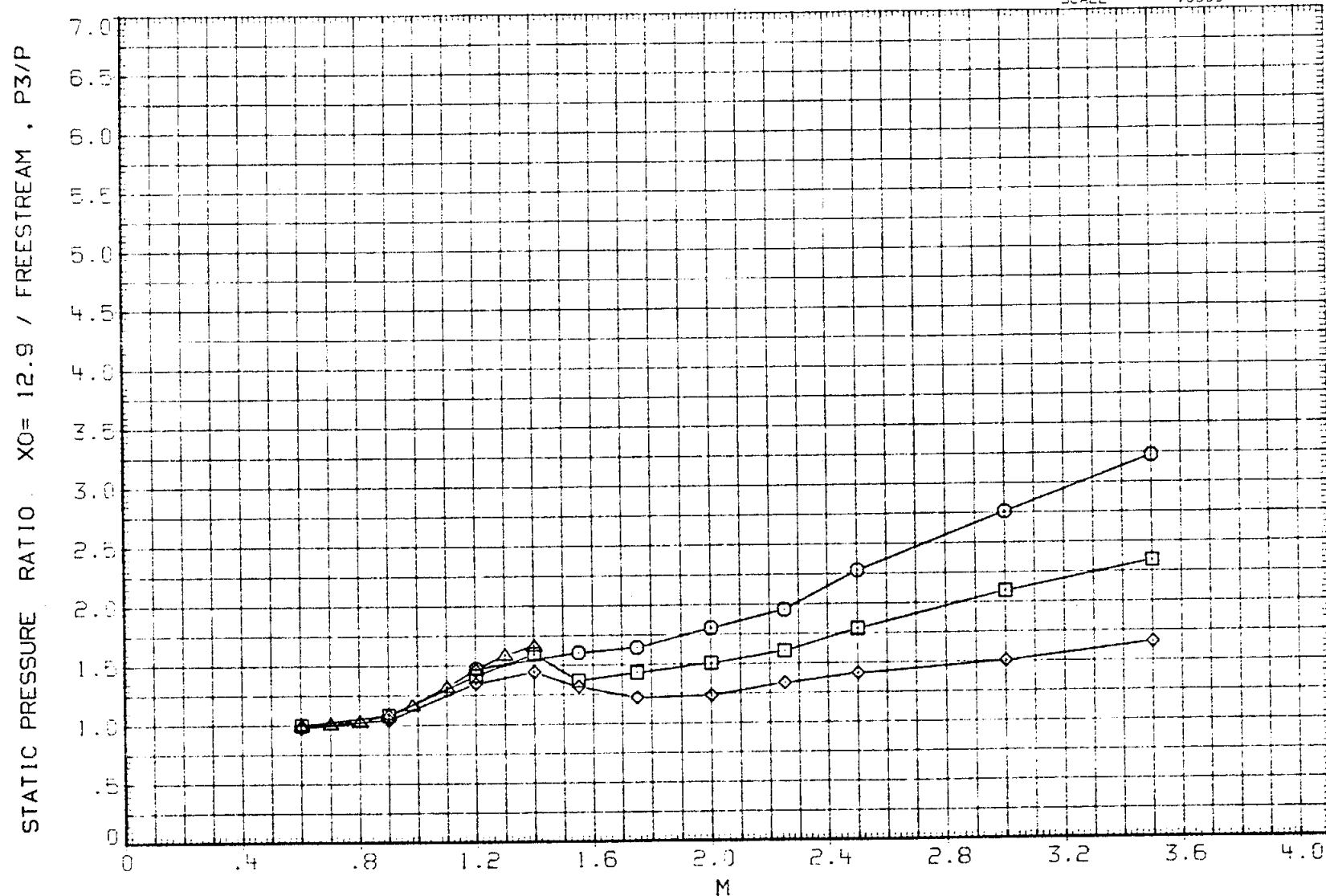


FIG. 20 EFFECT OF BETA ON STATIC PRESSURE RATIO PSJ/P LEFT RAKE

(C) ALPHA = 12.00



DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BD FLAP	REFERENCE INFORMATION		
AF7803	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
AF7805	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
AF7807	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
AF7801	△	DATA NOT AVAILABLE	.000			-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0330	

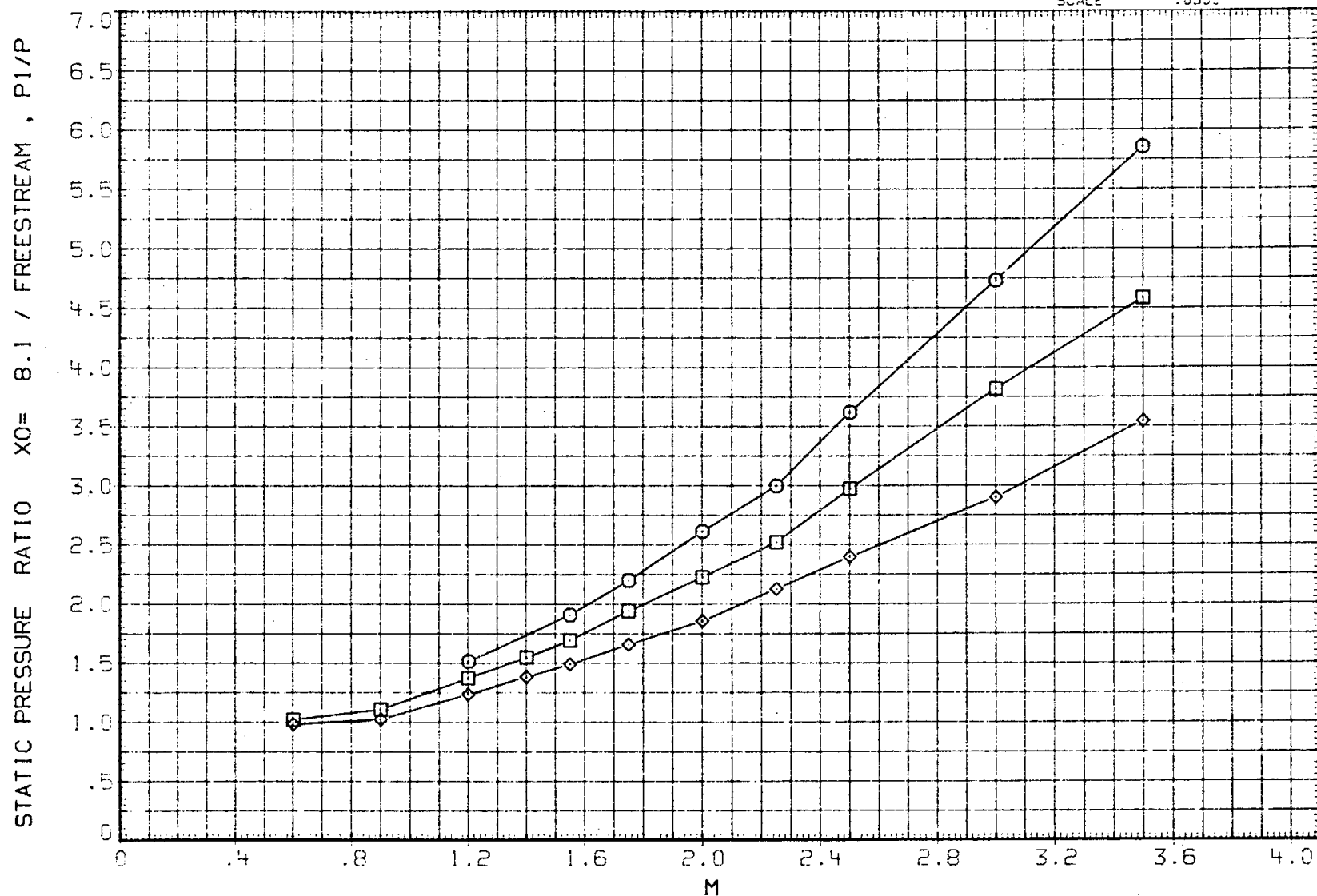


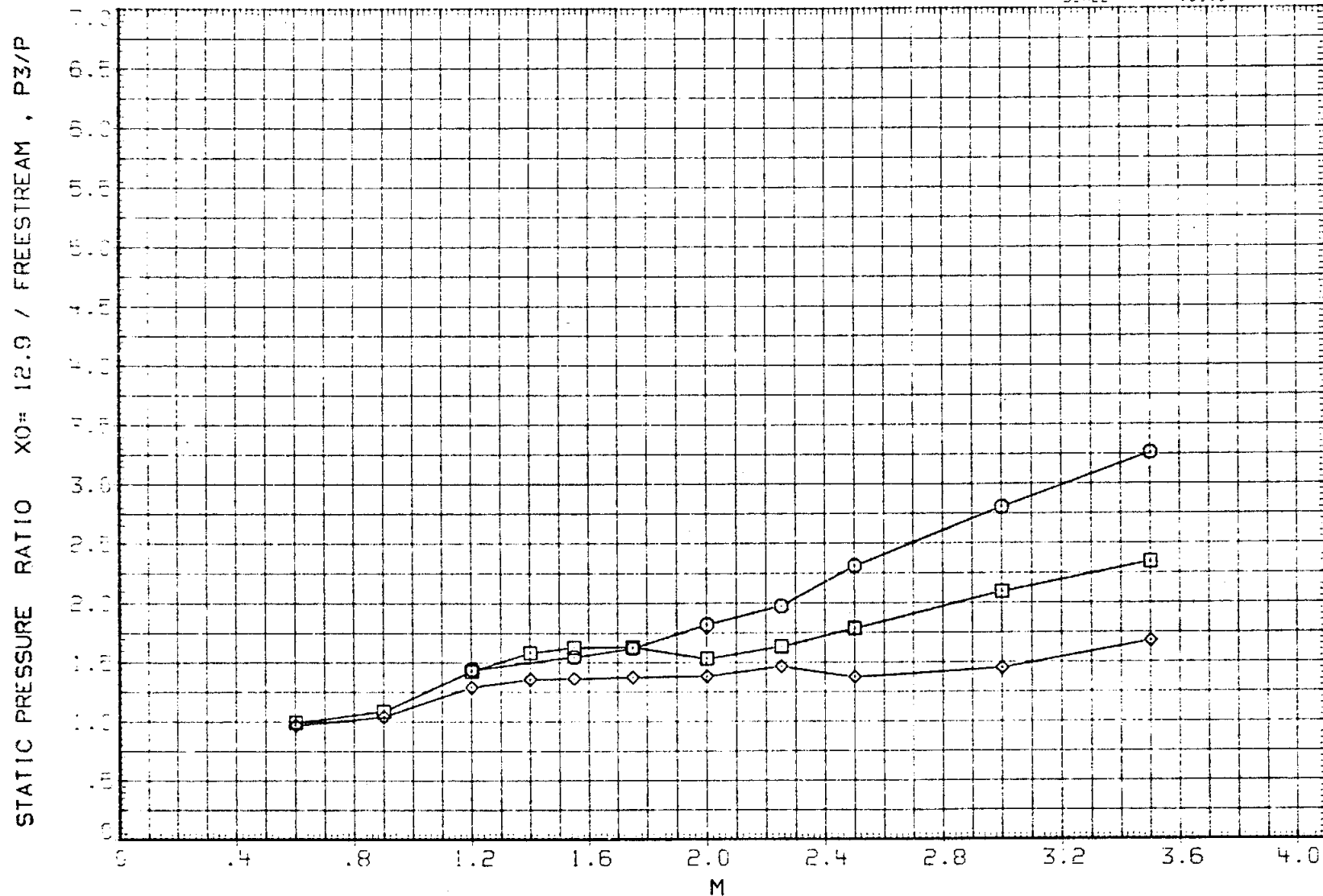
FIG. 20 EFFECT OF BETA ON STATIC PRESSURE RATIO PSJ/P LEFT RAKE

(D) ALPHA = 18.00

ARC 11-97-87-094 0A161 ORBITER + RAKES  
 ARC 11-97-87-094 0A161 ORBITER + RAKES  
 ARC 11-97-87-094 0A161 ORBITER + RAKES  
 DATA NOT AVAILABLE

-5.000 .000 .000 -7.170  
 .000 .000 .000 -7.170  
 5.000 .000 .000 -7.170  
 .000

SREF 2590.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 935.6000 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 376.0000 IN. ZO  
 SCALE .0000

FIG. 20 EFFECT OF BETA ON STATIC PRESSURE RATIO  $P_3/P$  LEFT RAKE

10) ALPHA = 18.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
ARC 11-97-87-094	△	0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50.FT.
ARC 11-97-87-094	△	0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
ARC 11-97-87-094	△	0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.5800	IN.
ARC 11-97-87-094	△	0A161 ORBITER - WING + RAKES	.000			-7.170	XMPP	1076.6800	IN. XO
							YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0300	

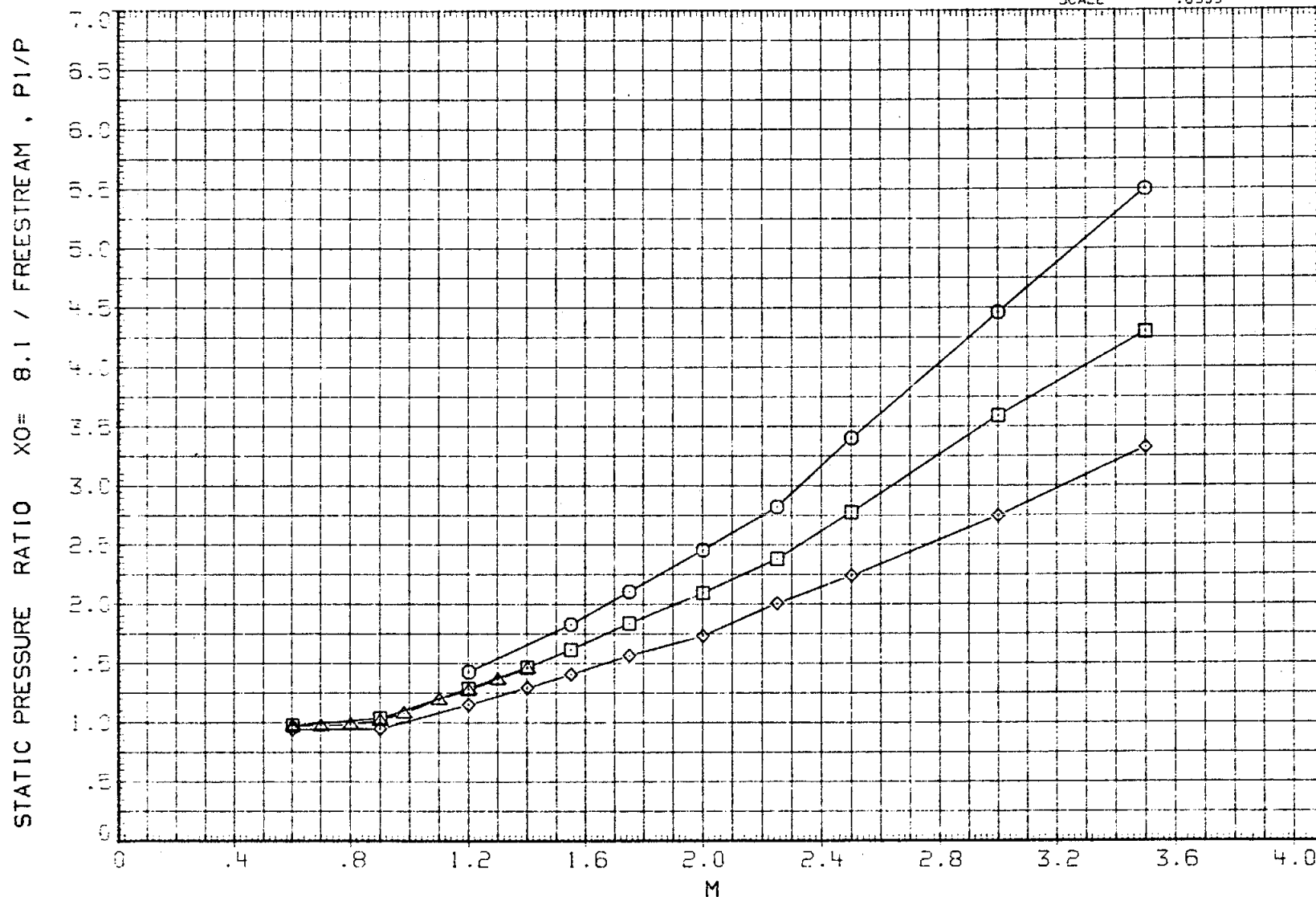


FIG. 20 EFFECT OF BETA ON STATIC PRESSURE RATIO  $PSJ/P$  LEFT RAKE

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILERON

BDFLAP

REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILERON	BDFLAP
AE1803	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170
AE1805	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170
AE1807	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170
AE1801	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000	.000	.000	-7.170

REFERENCE INFORMATION		
SREF	2690.0000	50. FT.
UREF	474.8000	IN.
BREF	336.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

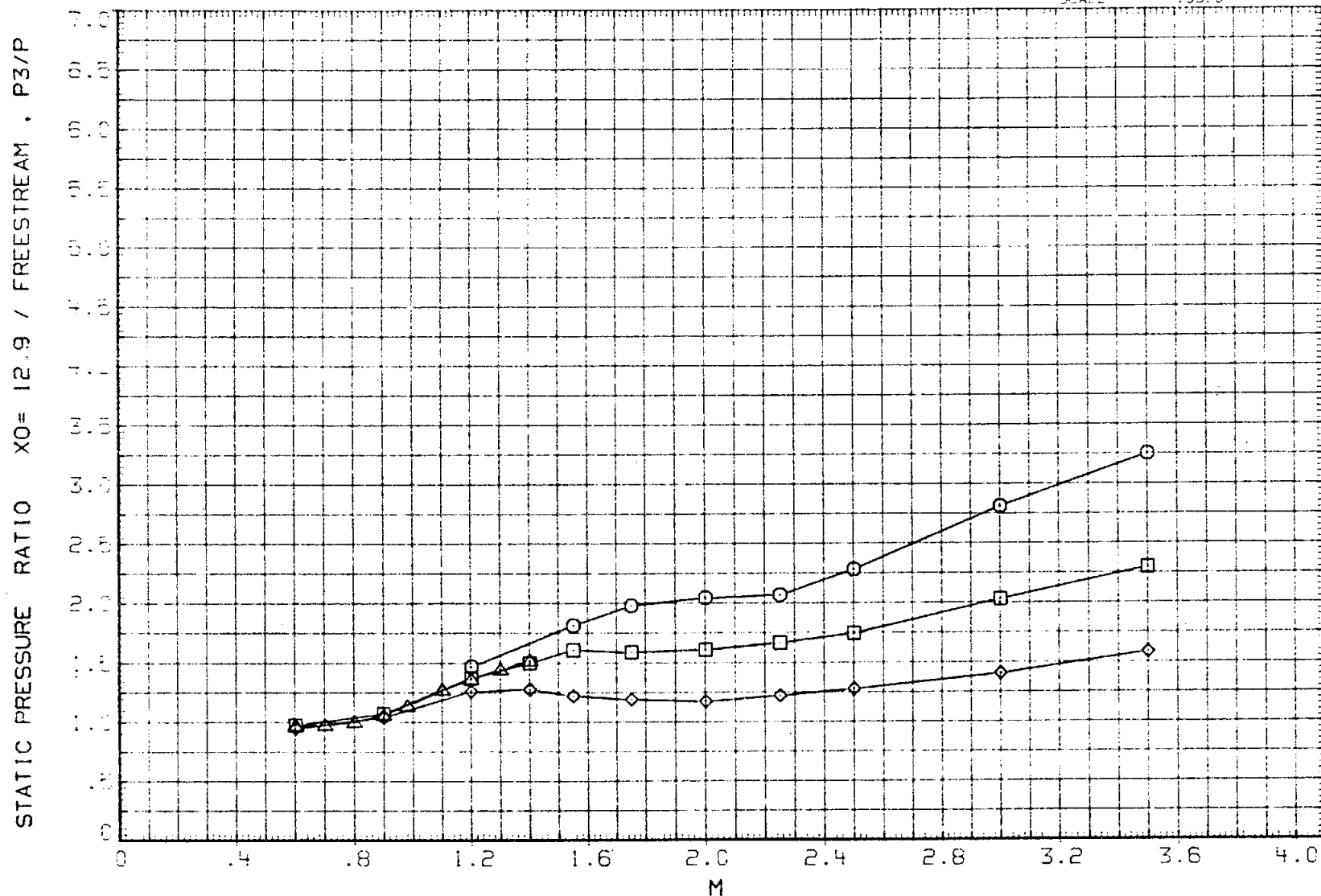


FIG. 20 EFFECT OF BETA ON STATIC PRESSURE RATIO PSJ/P LEFT RAKE

(E) ALPHA = 24.00

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DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
BE7803	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
BE7806	□	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.0000	IN.
BE7807	◇	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
BE7801	△	ARC 11-97-87-094 0A161 ORBITER - WING + RAKES	.000			-7.170	XMPP	1076.6800	IN. XO
							YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0300	

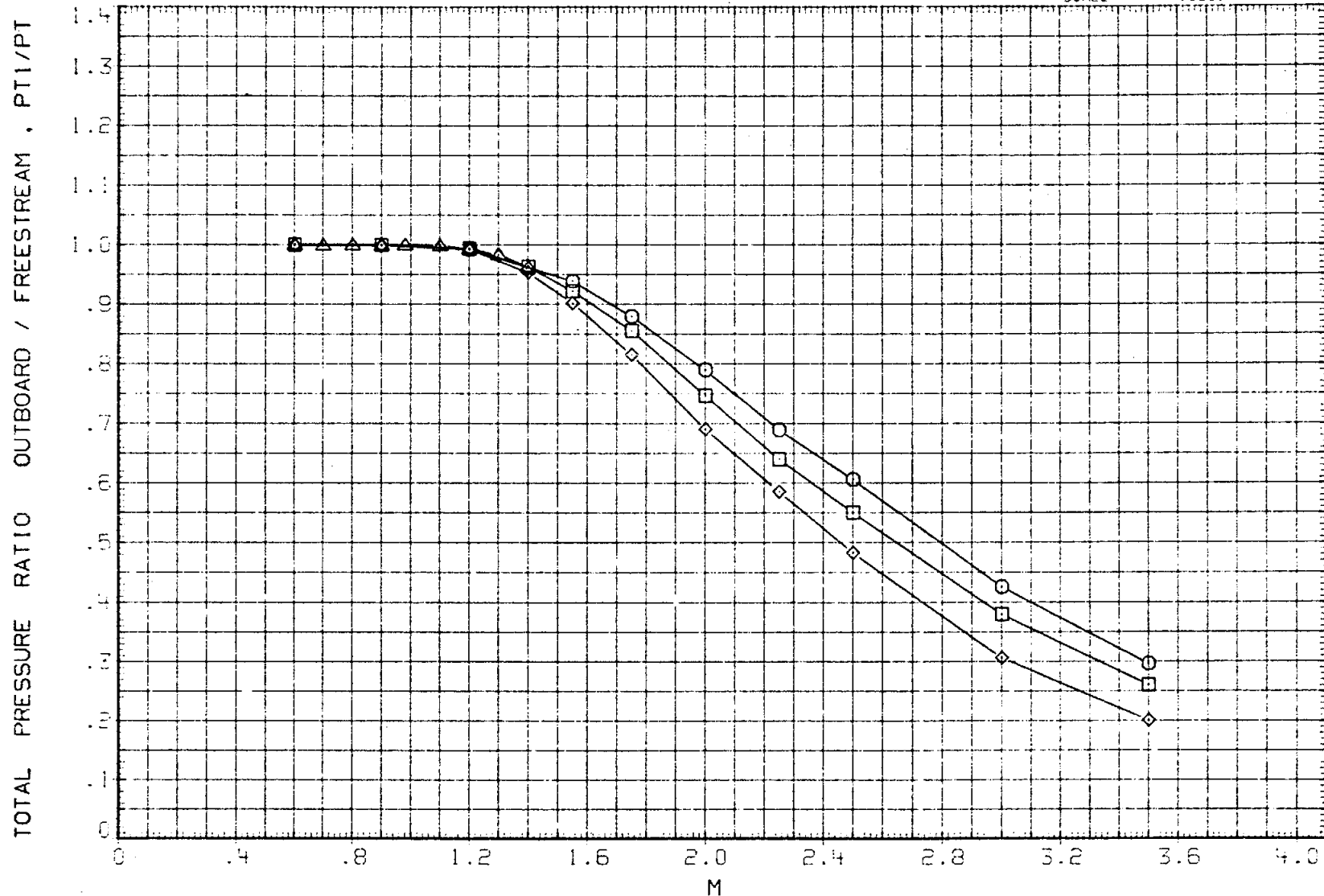


FIG. 21 EFFECT OF BETA ON TOTAL PRESSURE RATIO PT1/PT LEFT RAKE

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
BE7803	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50. FT.
BE7805	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	974.8000	IN.
BE7807	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
BE7801	△	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	XMPP	1076.6800	IN. XO
							YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0300	

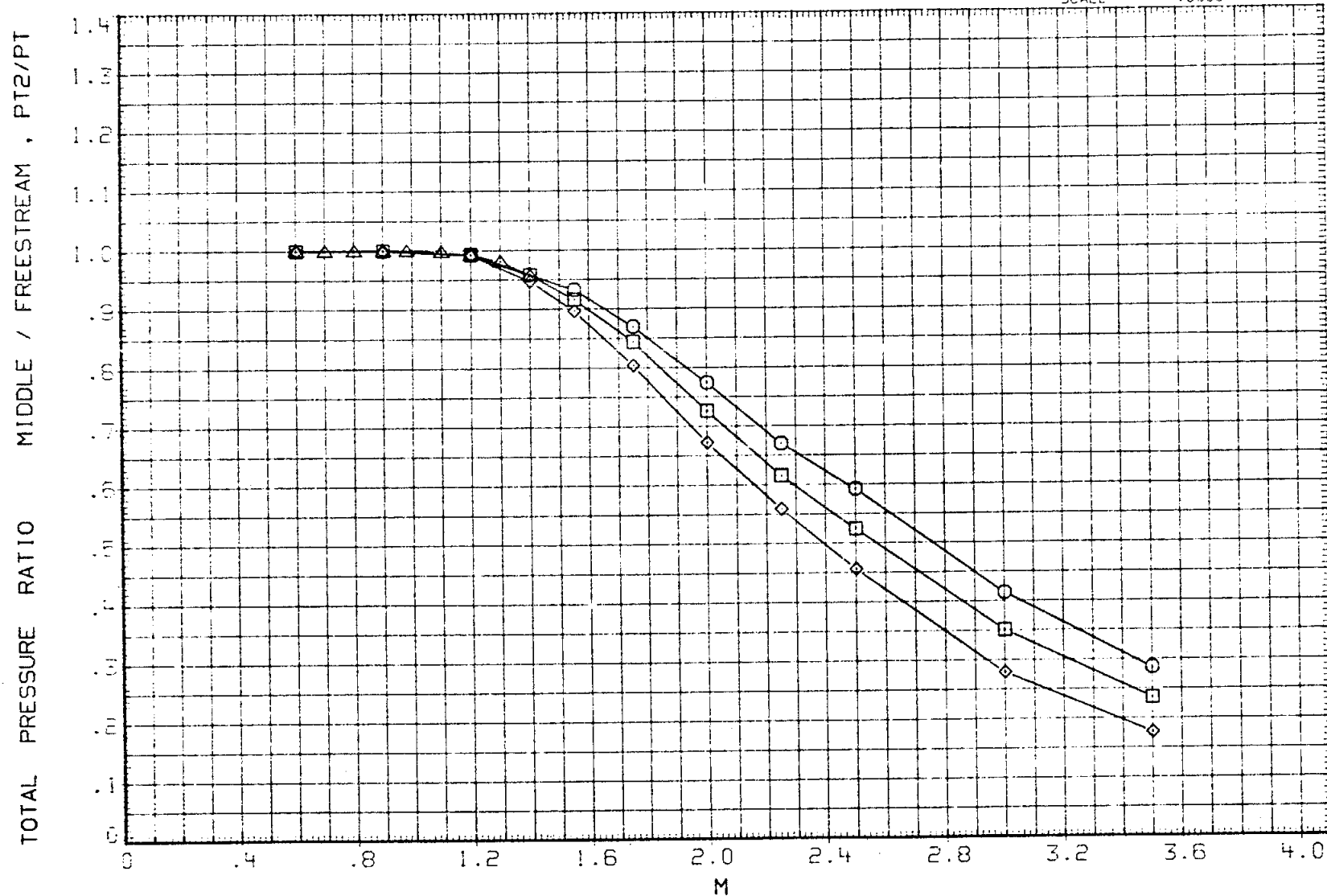


FIG. 21 EFFECT OF BETA ON TOTAL PRESSURE RATIO PT1/PT LEFT RAKE

(A) ALPHA = .00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
ARC 11-97-87-094	○	0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50.FT.
ARC 11-97-87-094	△	0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
ARC 11-97-87-094	□	0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	935.6800	IN.
ARC 11-97-87-094	◇	0A161 ORBITER - WING + RAKES	.000			-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0330	

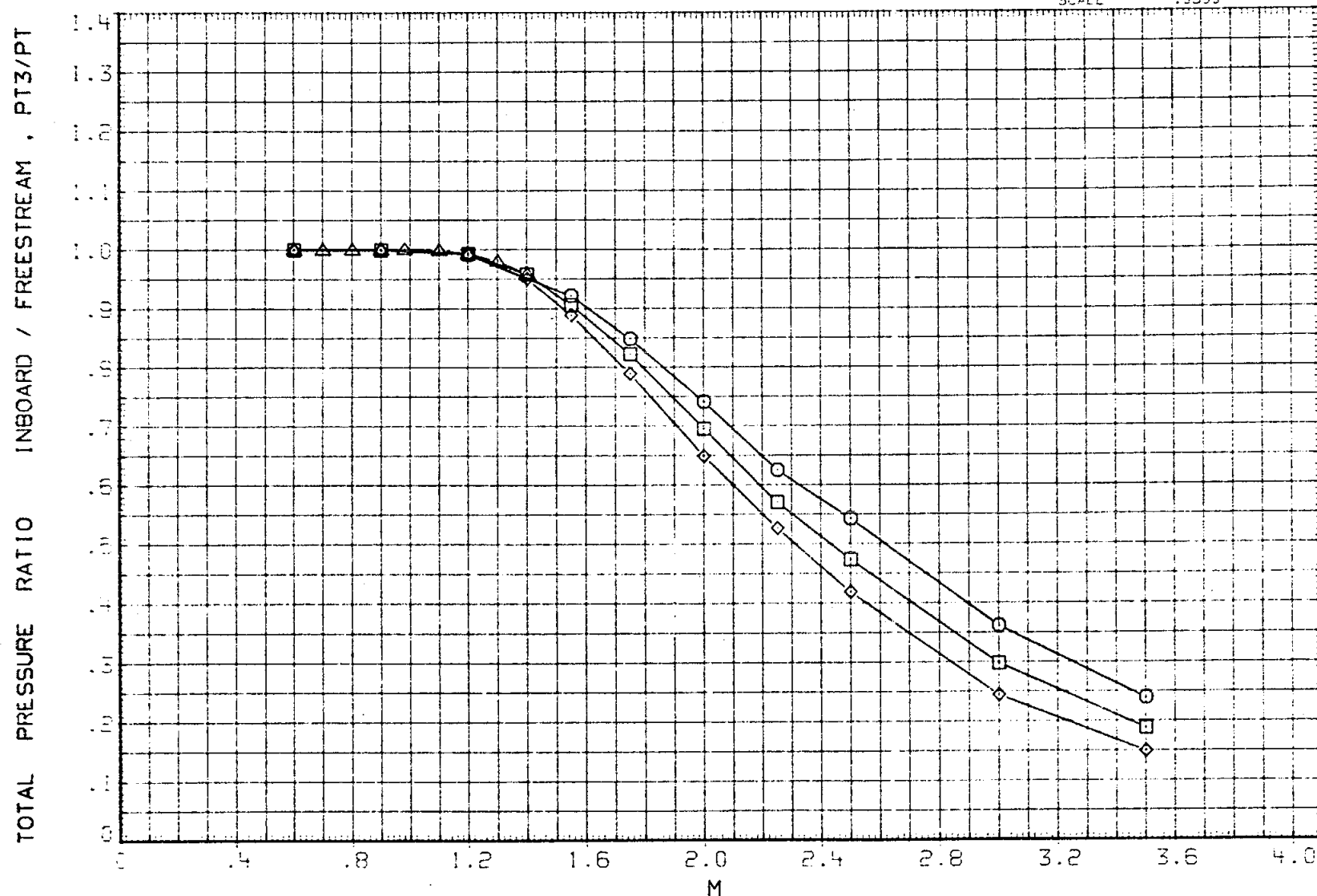


FIG. 21 EFFECT OF BETA ON TOTAL PRESSURE RATIO PT1/PT LEFT RAKE

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDCLAF	REFERENCE INFORMATION		
ARC 11-97-87-094	○	OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
ARC 11-97-87-094	□	OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
ARC 11-97-87-094	◇	OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
ARC 11-97-87-094	△	DATA NOT AVAILABLE	.000	.000	.000	-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

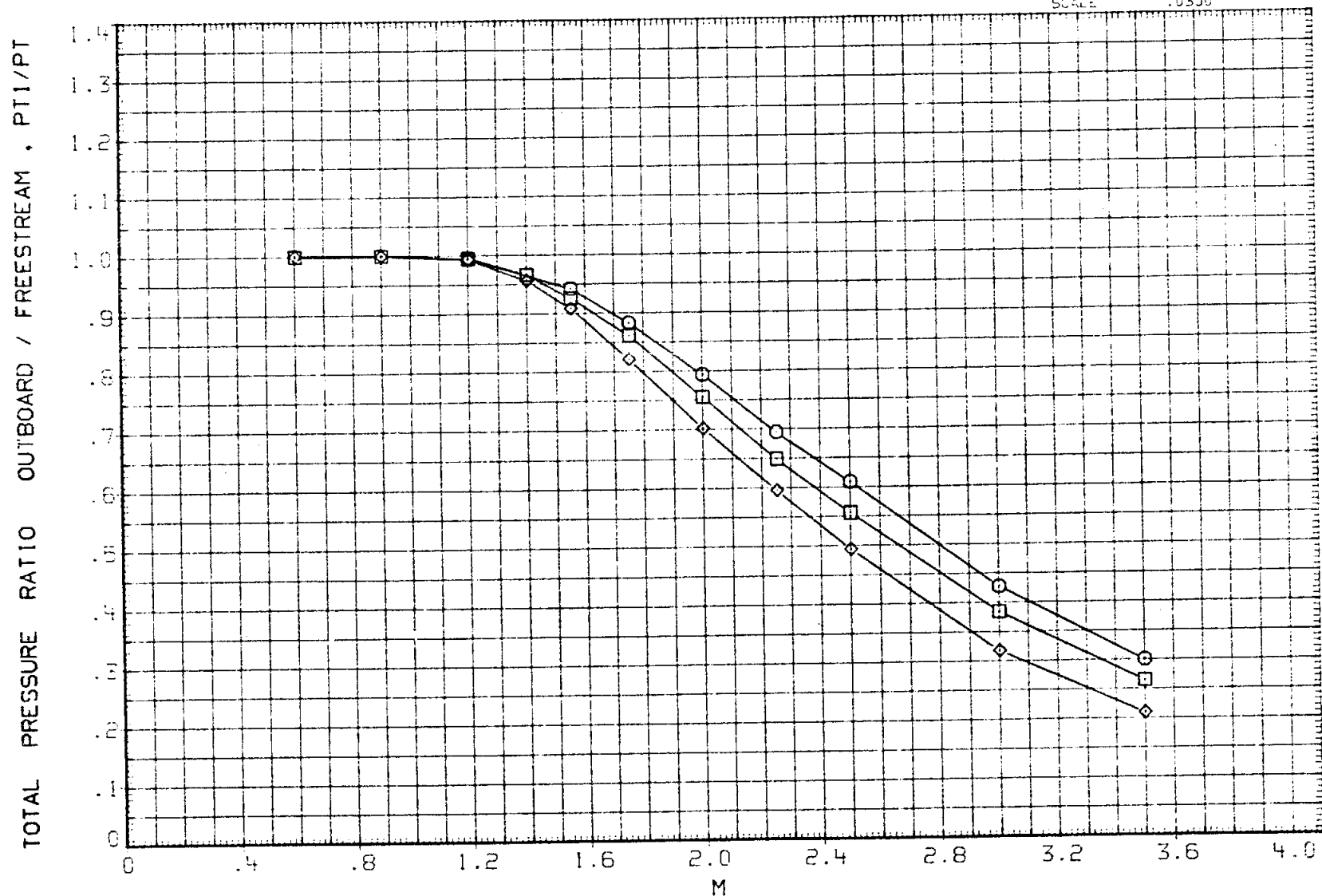


FIG. 21 EFFECT OF BETA ON TOTAL PRESSURE RATIO  $PT1/PT$  LEFT RAKE

(B) ALPHA = 6.00



DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BDFLAP

REFERENCE INFORMATION

BE7B03 ○ ARC 11-97-87-094 0A161 ORBITER + RAKES  
 BE7B05 □ ARC 11-97-87-094 0A161 ORBITER + RAKES  
 BE7B07 ◇ ARC 11-97-87-094 0A161 ORBITER + RAKES  
 BE7B01 △ DATA NOT AVAILABLE

-5.000  
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.000  
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-7.170  
 -7.170  
 -7.170  
 -7.170

SREF 2690.0000 SQ.FT.  
 LREF 474.9000 IN.  
 BREF 935.6800 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

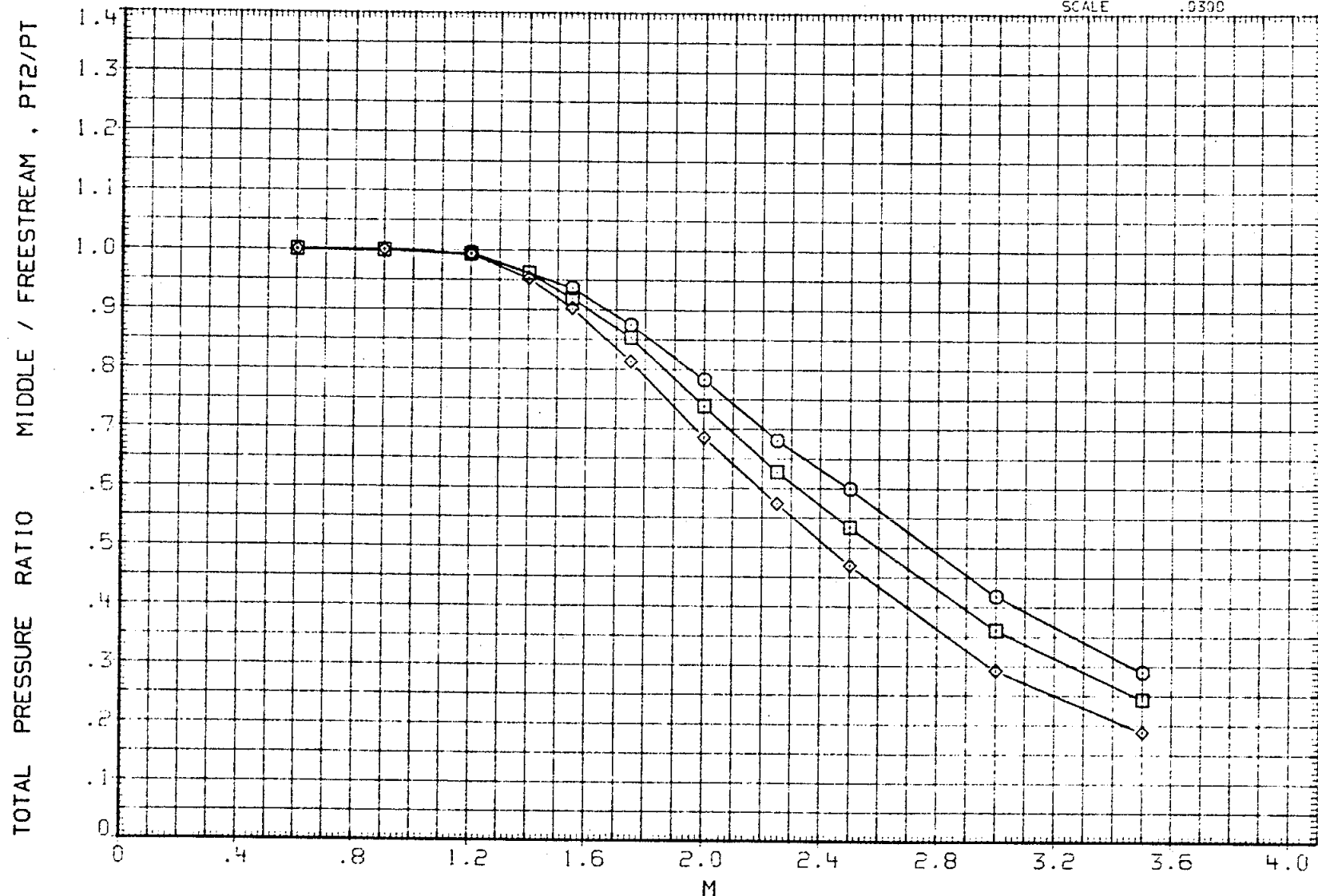


FIG. 21 EFFECT OF BETA ON TOTAL PRESSURE RATIO PTI/PT LEFT RAKE

(B) ALPHA = 6.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
BET803	○	ARC 11-97-87-094 04161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
BET806	□	ARC 11-97-87-094 04161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
BET807	◇	ARC 11-97-87-094 04161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
BET801	△	DATA NOT AVAILABLE	.000			-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

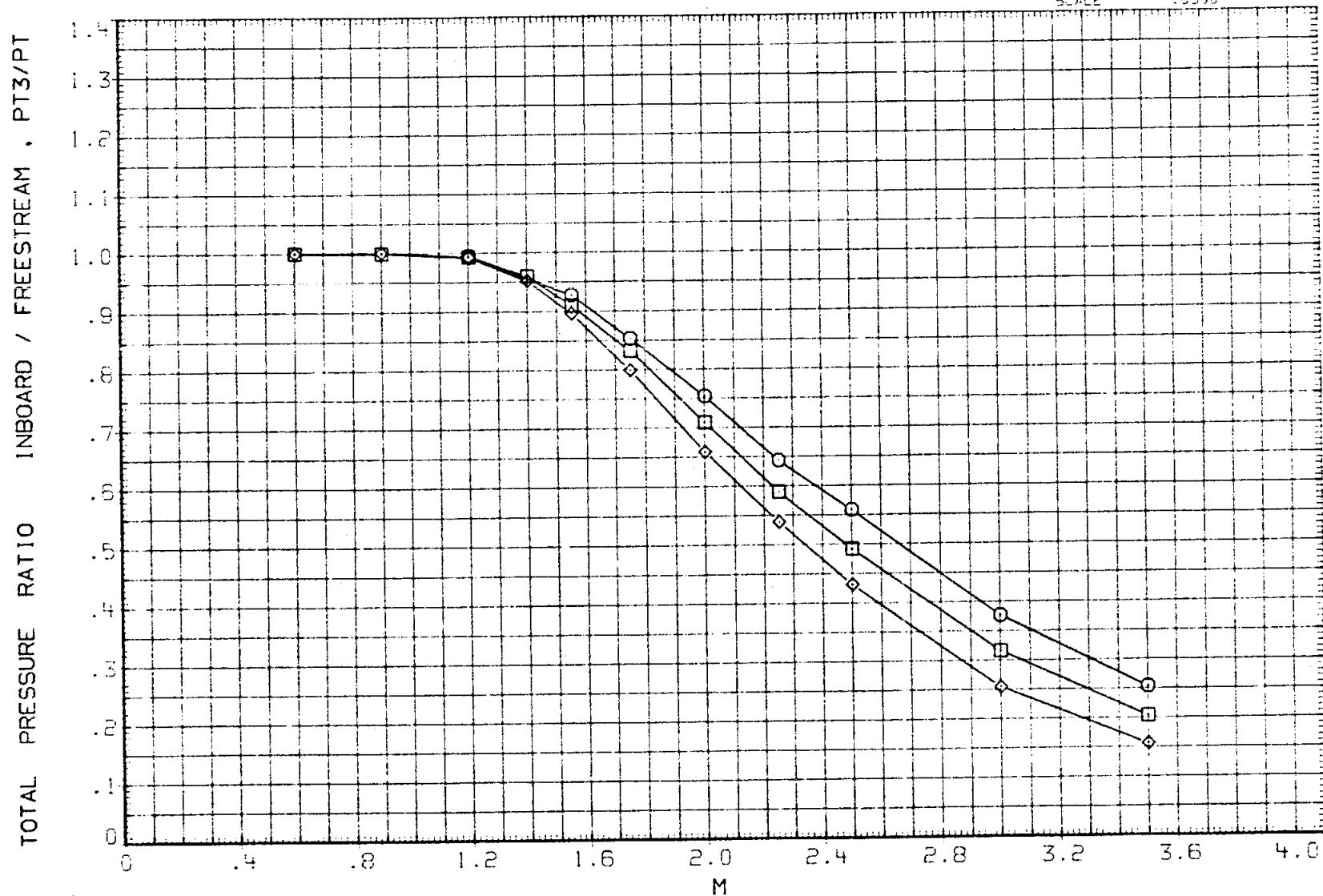


FIG. 21 EFFECT OF BETA ON TOTAL PRESSURE RATIO PT1/PT LEFT RAKE

(B) ALPHA = 6.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
BE7B03	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
BE7B05	□	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
BE7B07	◇	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
BE7B01	△	ARC 11-97-87-094 0A161 ORBITER - WING + RAKES	.000			-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

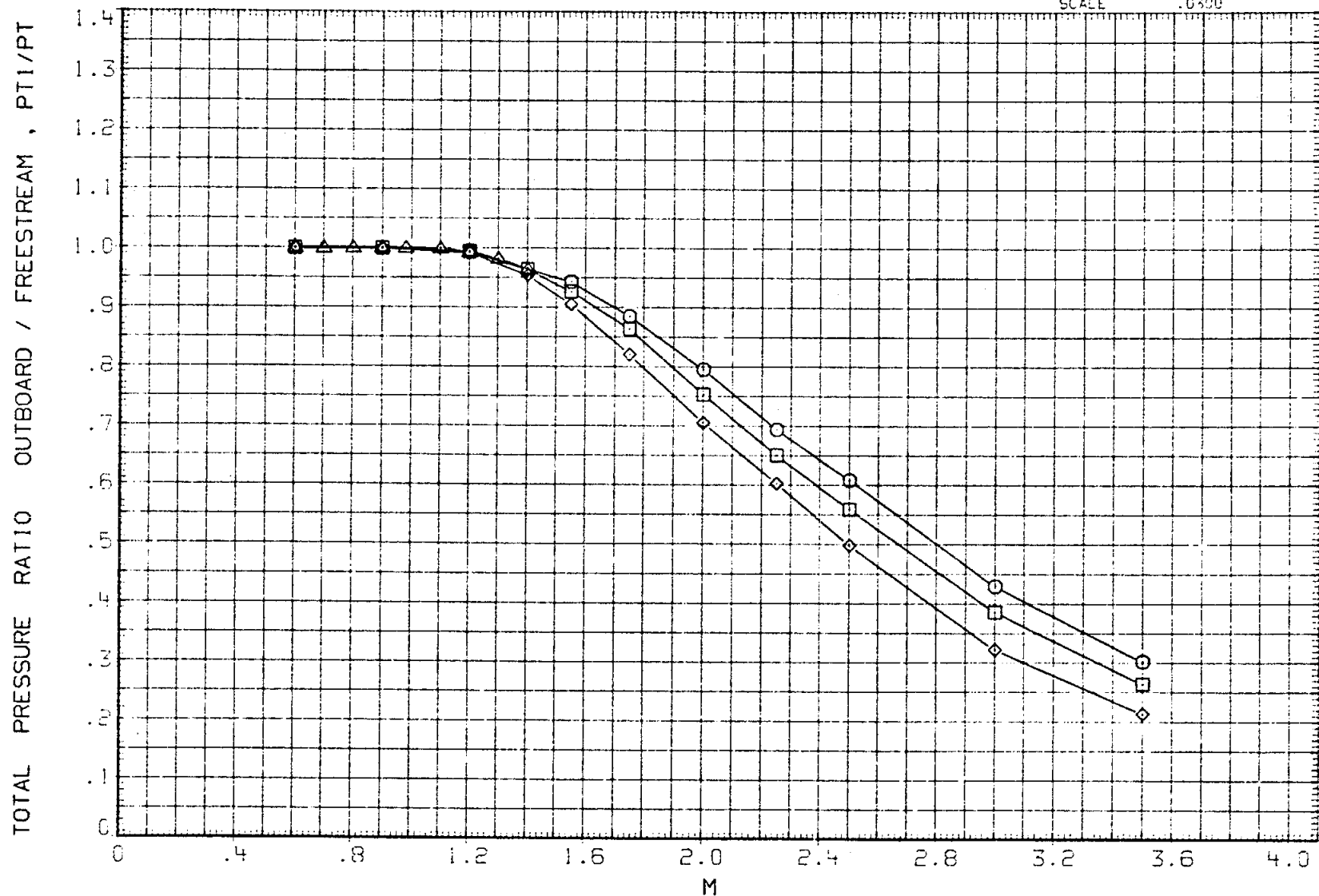


FIG. 21 EFFECT OF BETA ON TOTAL PRESSURE RATIO PT1/PT LEFT RAKE

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
ARC 11-97-87-094	○	04161 ORBITER + RAKES	-5.000	.000	.000	-7.179	SREF	2690.0000	SC.FT.
ARC 11-97-87-094	□	04161 ORBITER + RAKES	.000	.000	.000	-7.179	LREF	474.8000	IN.
ARC 11-97-87-094	△	04161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6900	IN.
ARC 11-97-87-094	◇	04161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	XMRP	1076.6900	IN. X0
							YMRP	.0000	IN. Y0
							ZMRP	375.0000	IN. Z0
							SCALE	.0300	

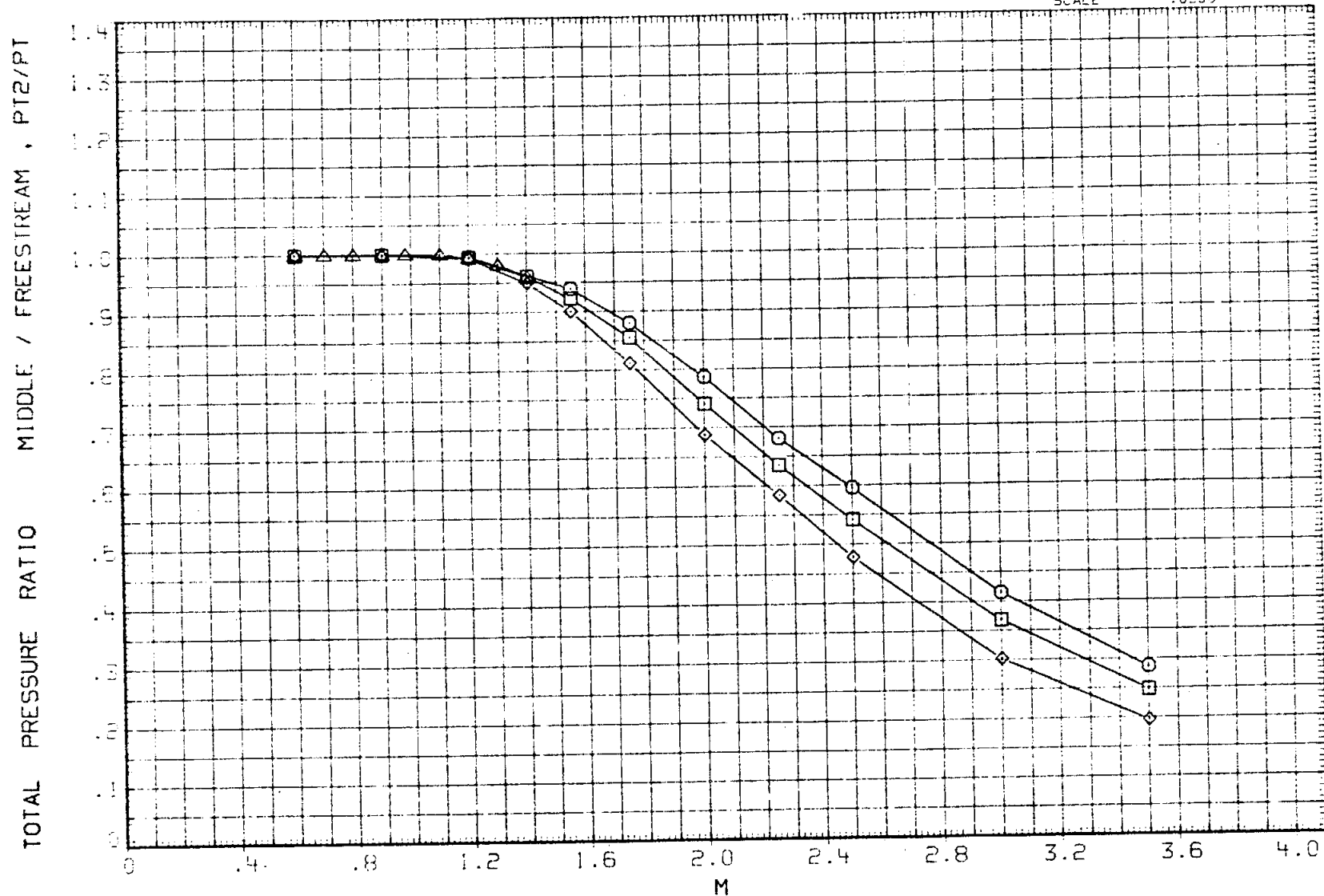


FIG. 21 EFFECT OF BETA ON TOTAL PRESSURE RATIO PTI/PT LEFT RAKE

CO ALPHA = 12.00

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
BE18009	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
BE18009	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
BE18009	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
BE18009	ARC 11-97-87-094 0A161 ORBITER - WING + RAKES	.000			-7.170	XMRP	1076.6800	IN. XO
						YMRP	.0000	IN. YO
						ZMRP	375.0000	IN. ZO
						SCALE	.0300	

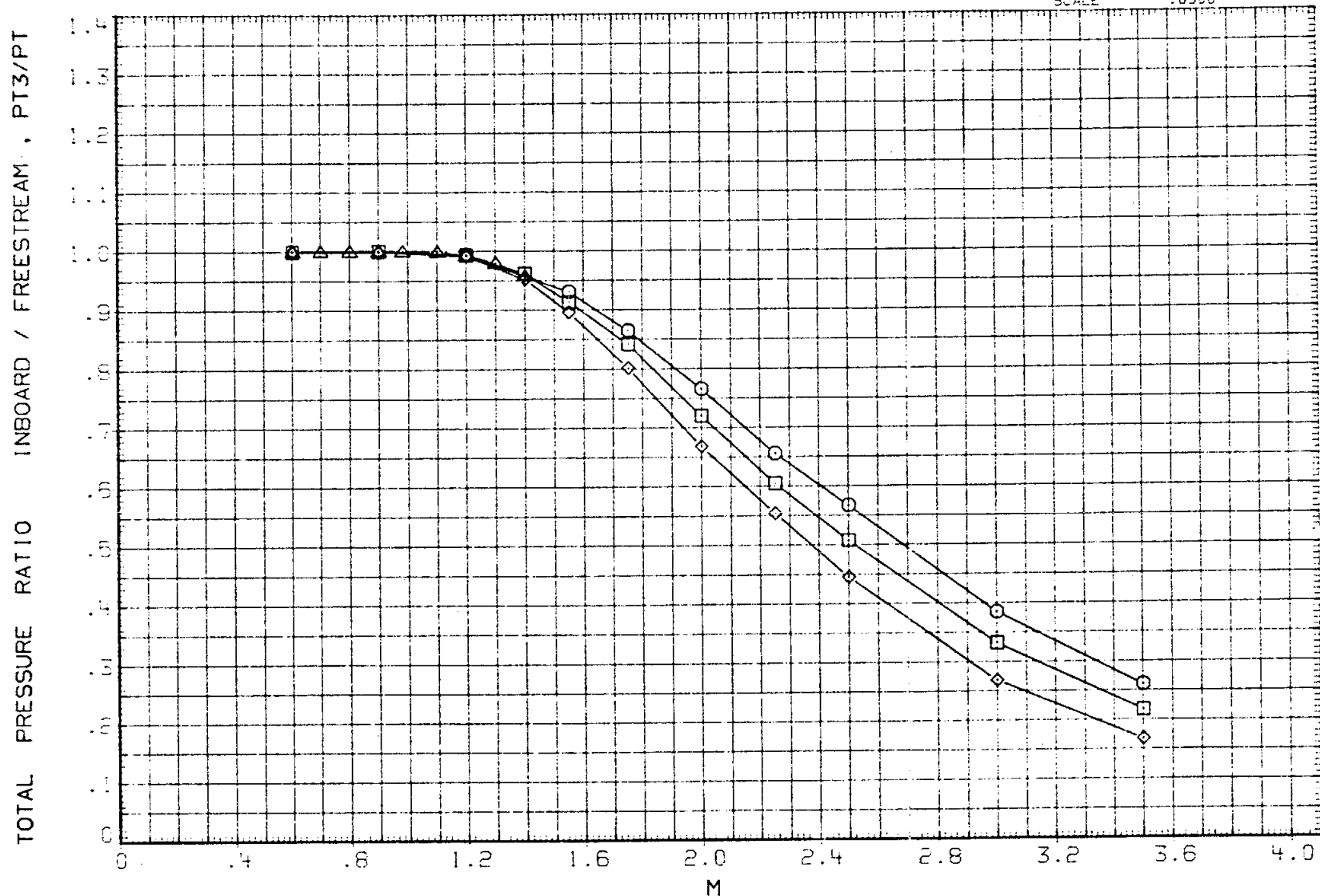


FIG. 21 EFFECT OF BETA ON TOTAL PRESSURE RATIO PT1/PT LEFT RAKE

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOTLAP	REFERENCE INFORMATION		
REF 1800	ARC 11-97-87-094 CA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SWIF	6860.0000	CG. FT.
REF 1800	ARC 11-97-87-094 CA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
REF 1800	ARC 11-97-87-094 CA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	938.6800	IN.
REF 1800	ARC 11-97-87-094 CA161 ORBITER + RAKES	.000	.000	.000	-7.170	XMPP	1076.6600	IN. X0
						YMPP	.0000	IN. Y0
						ZMPP	375.0000	IN. Z0
						SCALE	.9300	

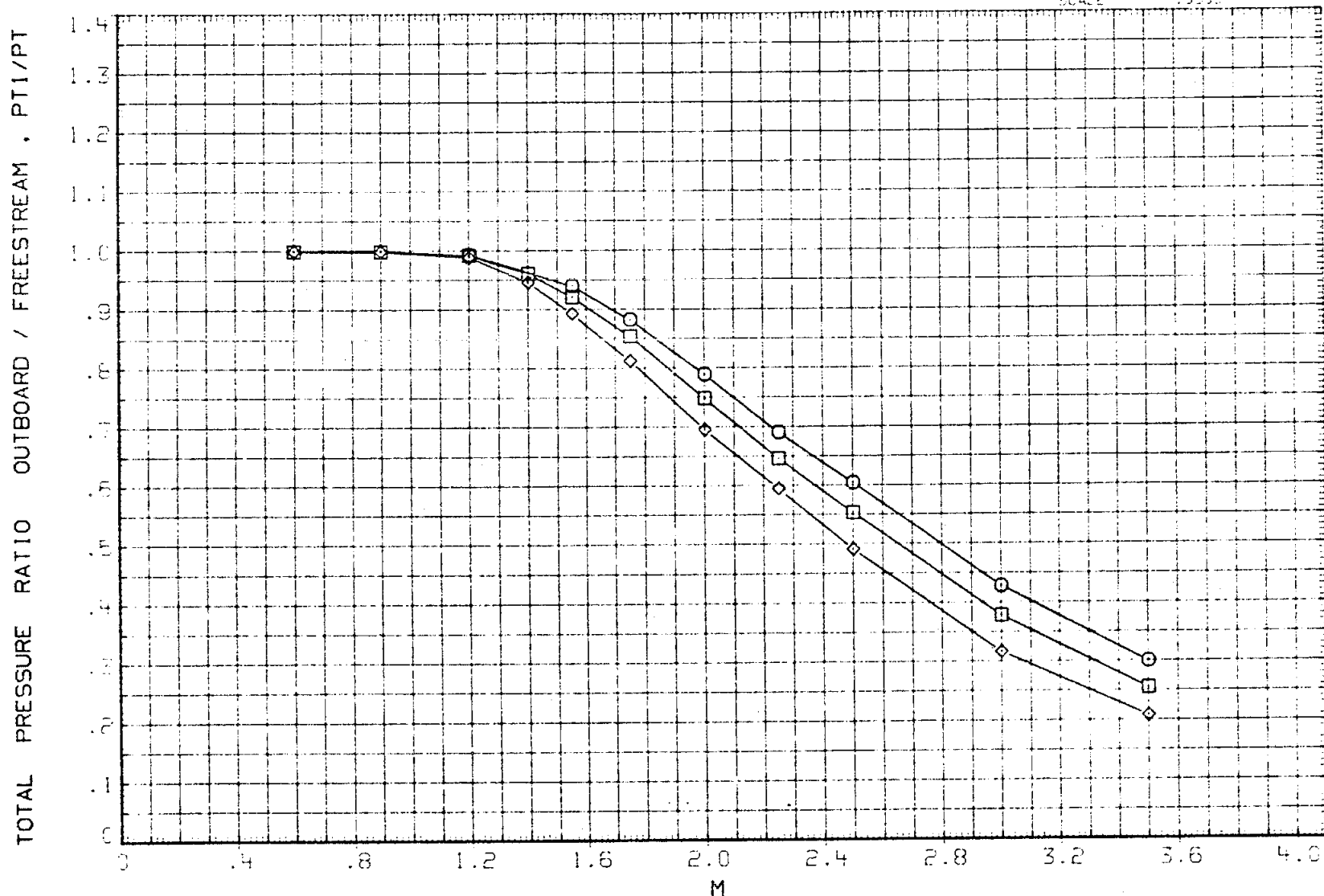


FIG. 21 EFFECT OF BETA ON TOTAL PRESSURE RATIO PTI/PT LEFT RAKE

TOTAL ALPHA = 18.00

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BOFLAP

REFERENCE INFORMATION

BE7803 ○ ARC 11-97-87-09+ 0A161 ORBITER + RAKES  
 BE7805 □ ARC 11-97-87-09+ 0A161 ORBITER + RAKES  
 BE7807 ◇ ARC 11-97-87-09+ 0A161 ORBITER + RAKES  
 BE7801 △ DATA NOT AVAILABLE

-5.000  
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 .000

.000  
 .000  
 .000

.000  
 .000  
 .000

-7.170  
 -7.170  
 -7.170  
 -7.170

SREF 2630.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

TOTAL PRESSURE RATIO MIDDLE / FREESTREAM , PT2/PT

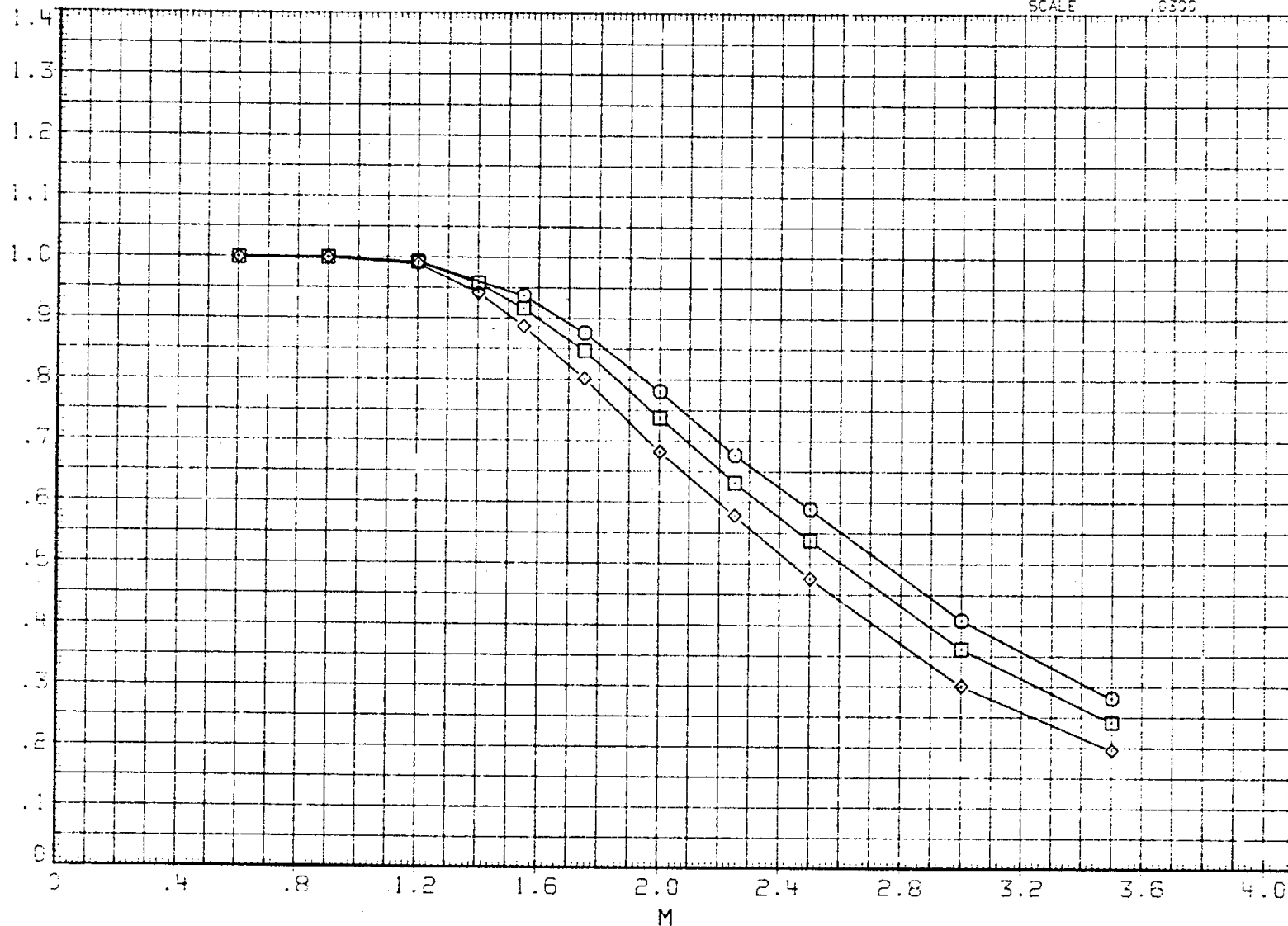


FIG. 21 EFFECT OF BETA ON TOTAL PRESSURE RATIO PT1/PT LEFT RAKE

(D) ALPHA = 18.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	SDFLAP	REFERENCE INFORMATION		
ARC 11-97-87-094	○	CA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	7690.0000	CO. FT.
ARC 11-97-87-094	□	CA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
ARC 11-97-87-094	◇	CA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	935.6800	IN.
ARC 11-97-87-094	△	DATA NOT AVAILABLE	.000				YMSP	1076.6800	IN. X0
							VMSP	.0000	IN. Y0
							ZMSP	370.0000	IN. Z0
							SCALE	.0500	

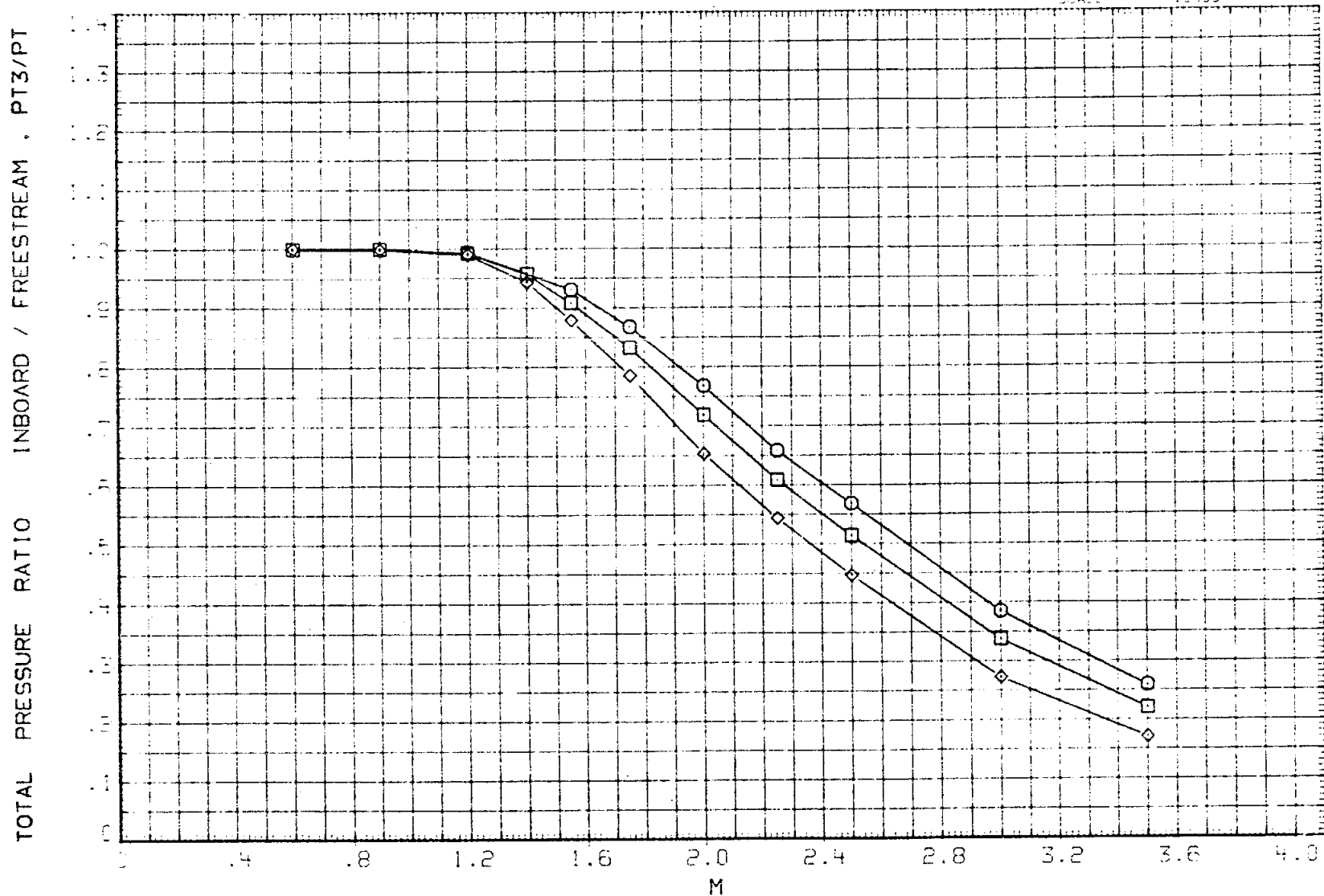


FIG. 21 EFFECT OF BETA ON TOTAL PRESSURE RATIO PT1/PT LEFT RAKE

(D ALPHA = 18.00



DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
BE7803	ABC	11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50. FT.
BE7803	ABC	11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
BE7803	ABC	11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6000	IN.
BE7803	ABC	11-97-87-094 OA161 ORBITER - WING + RAKES	.000			-7.170	XMRP	1076.6000	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

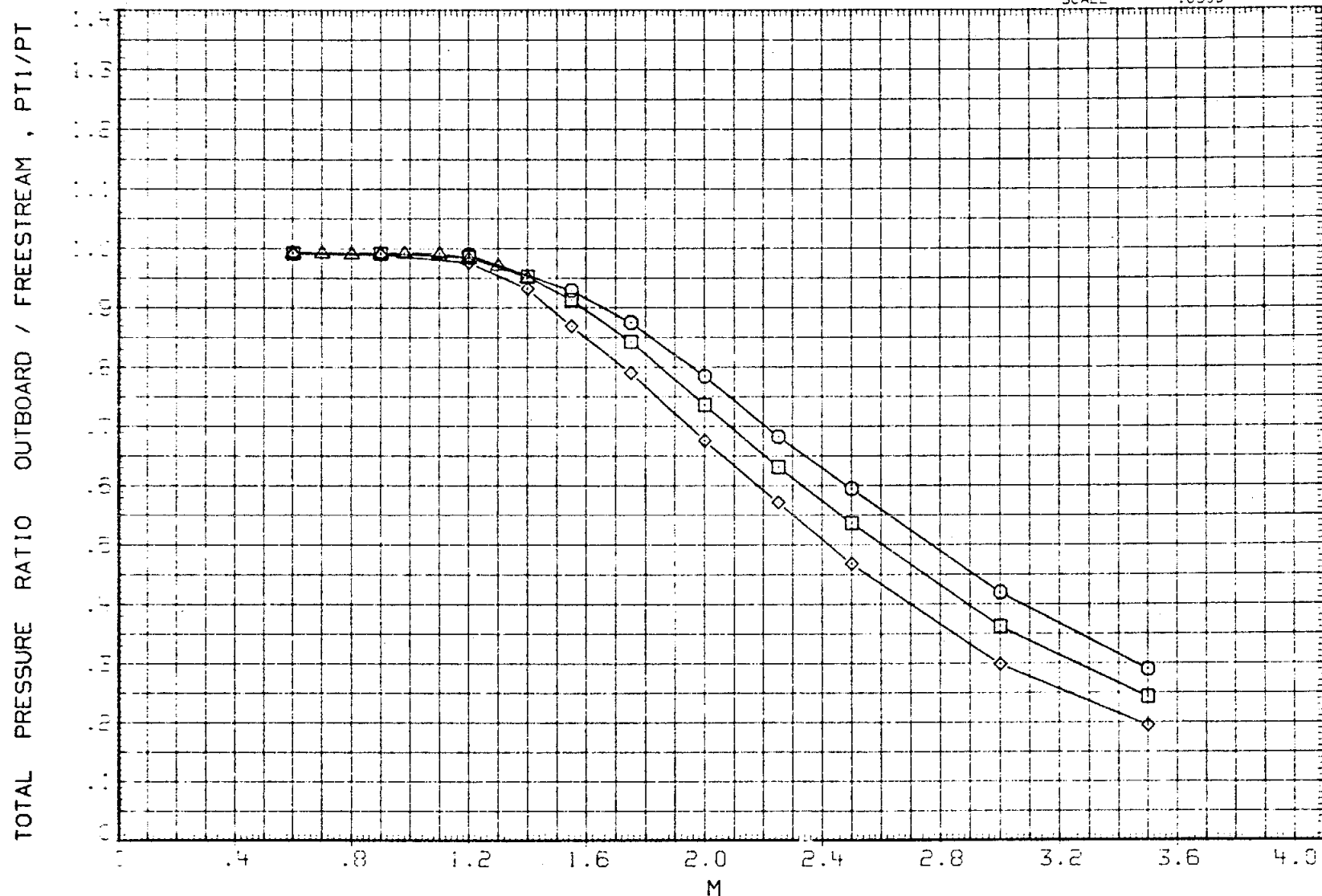


FIG. 21 EFFECT OF BETA ON TOTAL PRESSURE RATIO PT1/PT LEFT RAKE

DATA SET SYMBOL		CONFIGURATION	BETA	ELEVON	AILERON	BSFLAP	REFERENCE INFORMATION		
01-01	○	ARC 11-97-87-094 OAI161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SPRF	2000.0000	60. FT.
01-02	□	ARC 11-97-87-094 OAI161 ORBITER + RAKES	.000	.000	.000	-7.170	LOFF	44.0000	IN.
01-03	◇	ARC 11-97-87-094 OAI161 ORBITER + RAKES	5.000	.000	.000	-7.170	WALF	936.6800	IN.
01-04	△	ARC 11-97-87-094 OAI161 ORBITER + WING + RAKES	.000	.000	.000	-7.170	YMPP	1076.6800	IN. XO
							YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0000	

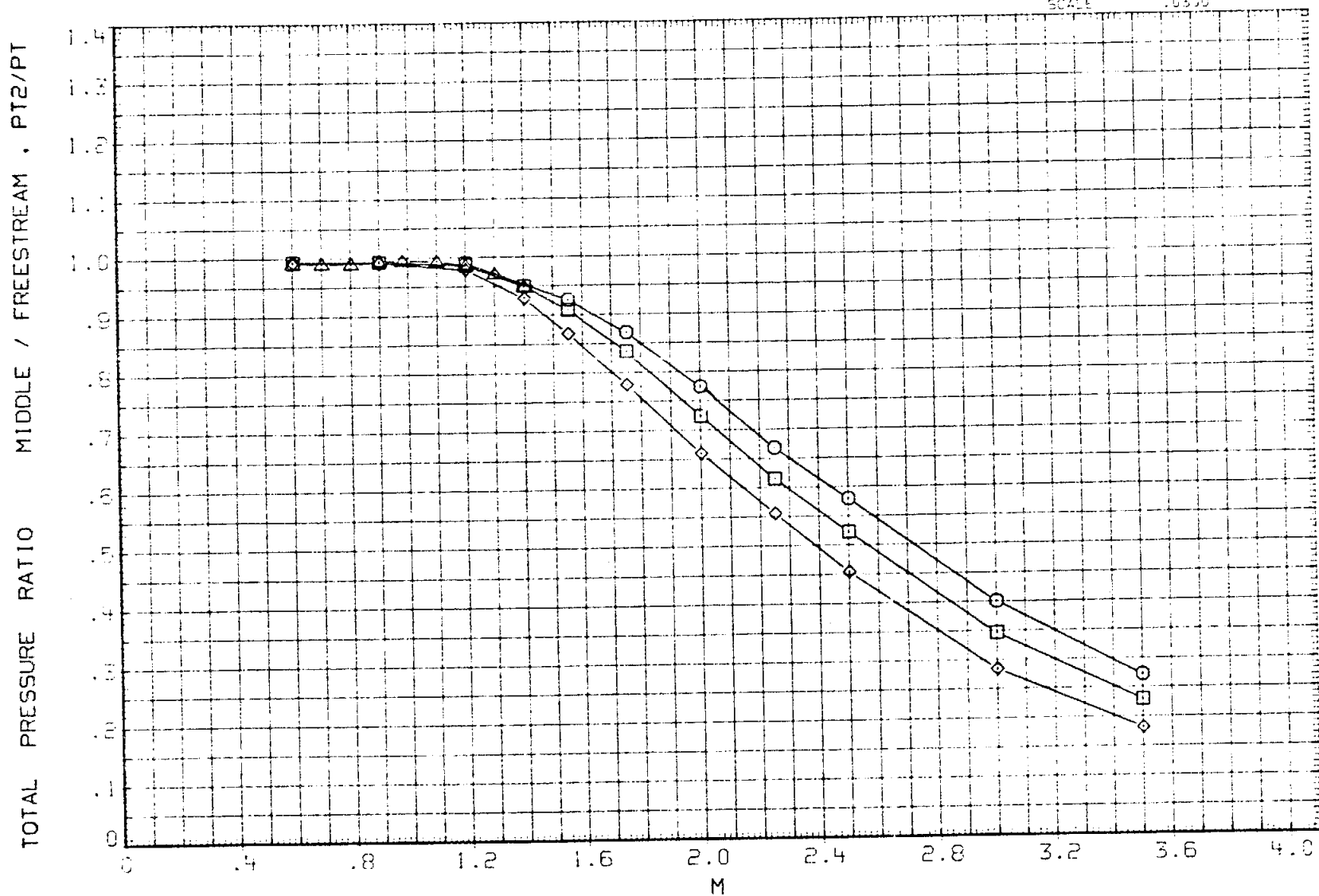


FIG. 21 EFFECT OF BETA ON TOTAL PRESSURE RATIO PT1/PT LEFT RAKE

(E) ALPHA = 24.00

00004  
00011  
00016  
00023

```
ARC 11-97-87-094 0A161 ORBITER + RAKES
ARC 11-97-87-094 0A161 ORBITER + RAKES
ARC 11-97-87-094 0A161 ORBITER + RAKES
ARC 11-97-87-094 0A161 ORBITER - WING + RAKES
```

BETA	ELEVON	AILRON	BDFLAP
-5.000	.000	.000	-7.170
.000	.000	.000	-7.170
5.000	.000	.000	-7.170
.000			-7.170

SREF	2590.0000	50.FT.
LREF	474.8000	IN.
BREF	936.6000	IN.
XMPP	1076.6000	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0000	

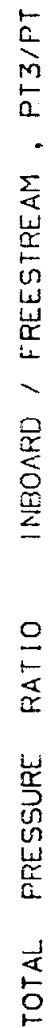


FIG. 21 EFFECT OF BETA ON TOTAL PRESSURE RATIO PT1/PT LEFT RAKE

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILERON	BOFLAP	PERFORMANCE INFORMATION
11-97-87-094	ARC	11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	REF 338.10000 INL YO
11-97-87-094	ARC	11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	REF 338.10000 INL YO
11-97-87-094	ARC	11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	REF 338.10000 INL YO
11-97-87-094	ARC	11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	REF 338.10000 INL YO
							SCALE .0000

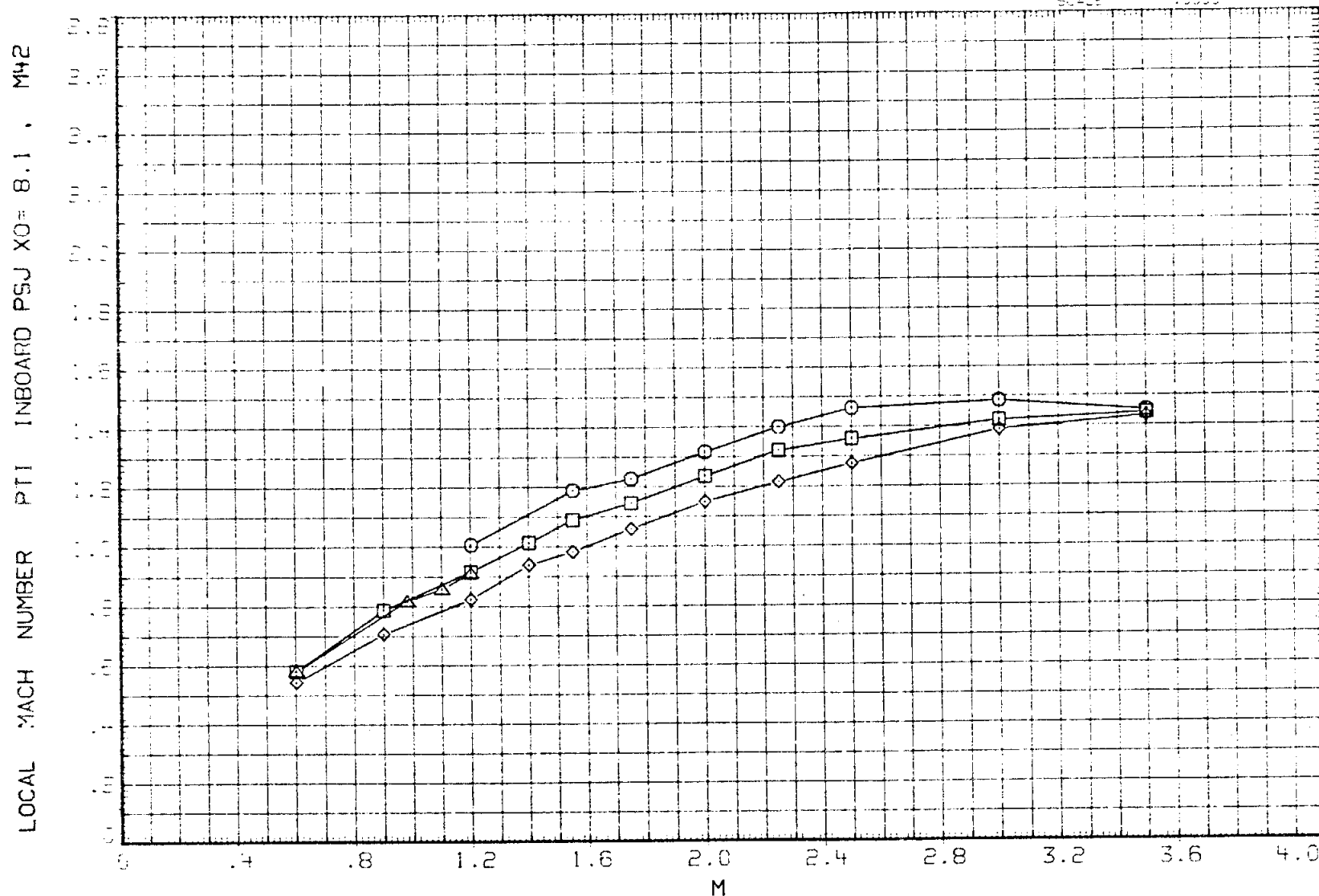


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

(ALPHA) = .00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
FE7X03	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
FE7X05	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LPEF	474.8000	IN.
FE7X07	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
FE7X01	△	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000			-7.170	YMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

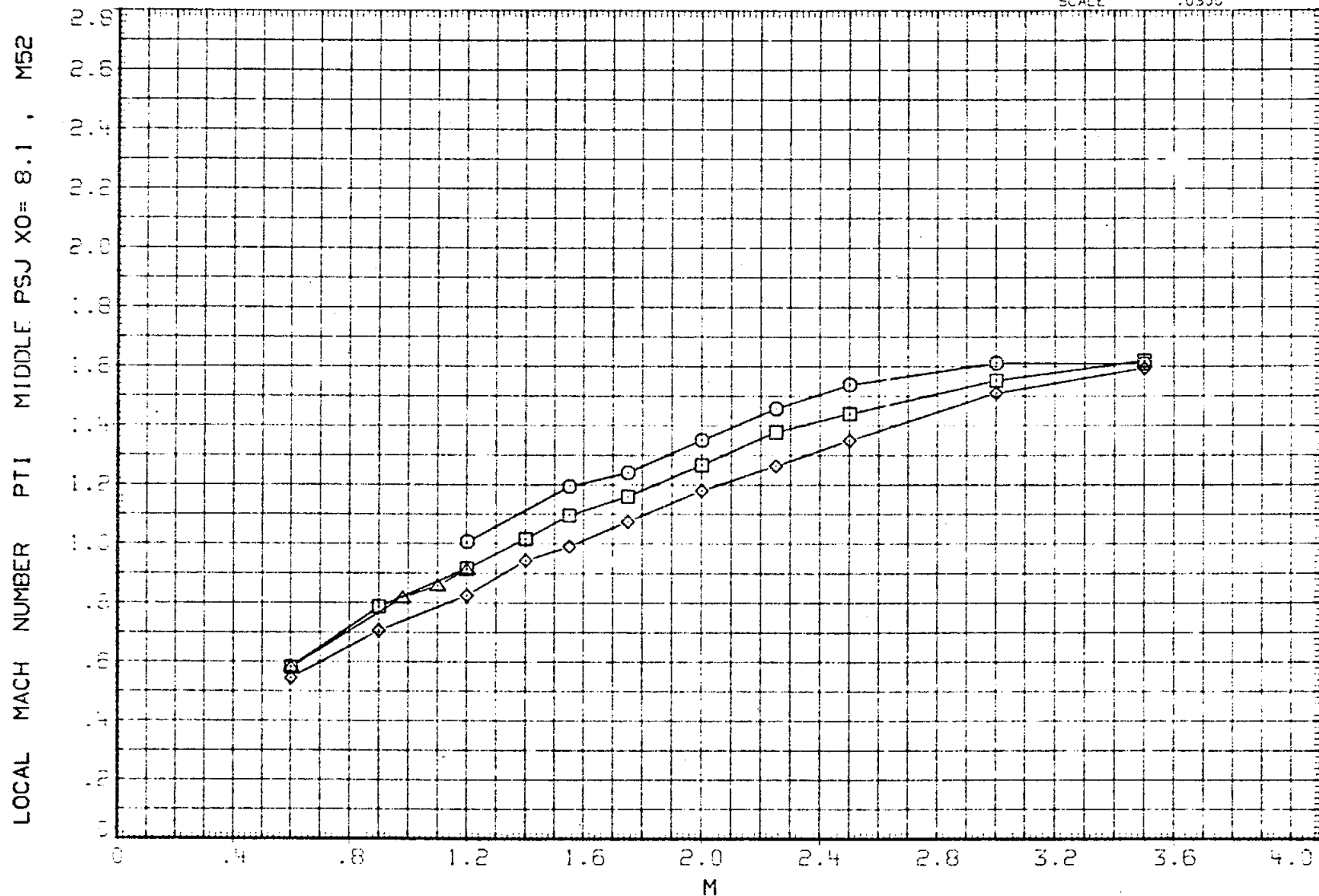


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

▽	10X1.1
◇	20X1.1
□	60X1.1
○	20X1.1
DATA SET 155 4140	

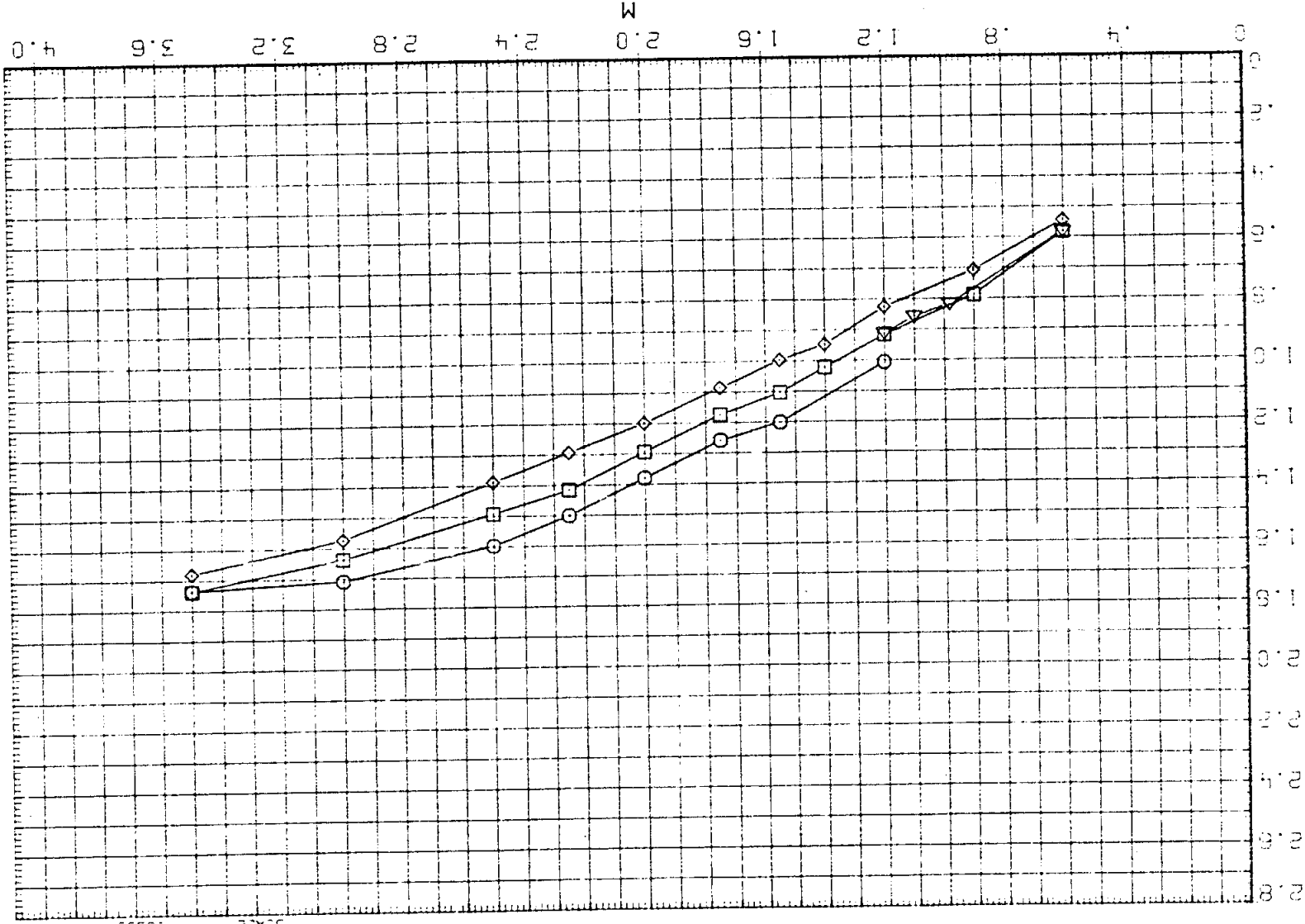
[illegible]

BETA  
-5.000  
5.000  
5.000  
000.

ALLIRON

021-2-  
021-2-

SCALE	SCORE	IN.	NO
9500	936.6800	IN.	NO
9000	936.6800	IN.	NO
8500	936.6800	IN.	NO
8000	936.6800	IN.	NO
7500	936.6800	IN.	NO
7000	936.6800	IN.	NO
6500	936.6800	IN.	NO
6000	936.6800	IN.	NO
5500	936.6800	IN.	NO
5000	936.6800	IN.	NO
4500	936.6800	IN.	NO
4000	936.6800	IN.	NO
3500	936.6800	IN.	NO
3000	936.6800	IN.	NO
2500	936.6800	IN.	NO
2000	936.6800	IN.	NO
1500	936.6800	IN.	NO
1000	936.6800	IN.	NO
500	936.6800	IN.	NO
0	936.6800	IN.	NO



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(A) ALPHA = .00

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
FE7X03	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ. FT.
FE7X05	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8300	IN.
FE7X07	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6600	IN.
FE7X01	ARC 11-97-87-094 0A161 ORBITER - WING + RAKES	.000			-7.170	XMRP	1076.6800	IN. XO
						YMRP	.0000	IN. YO
						ZMRP	375.0000	IN. ZO
						SCALE	.0000	

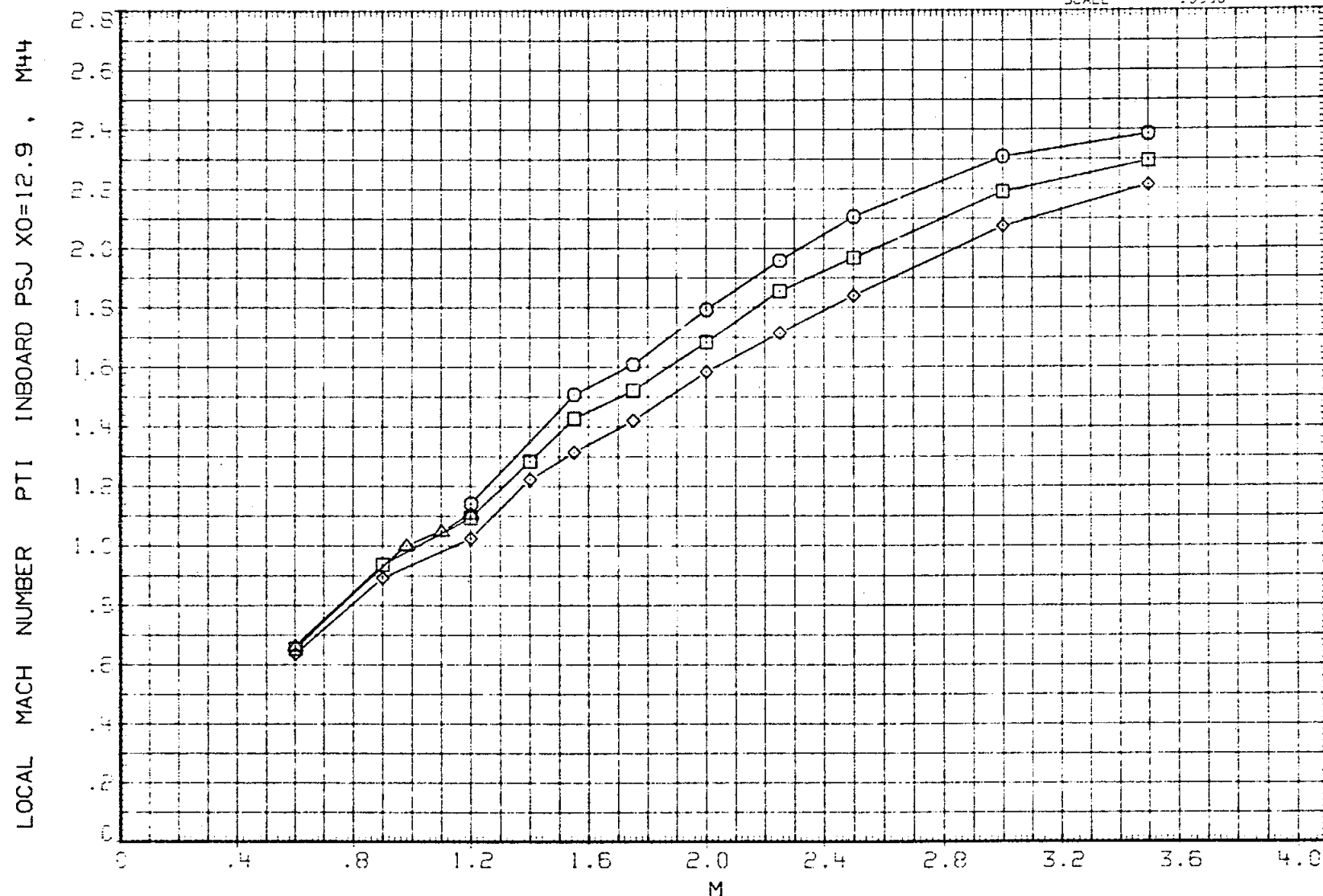


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

(A) ALPHA = .00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
FETX03	○	ARC 11-97-87-09% OAI61 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ. FT.
FETX05	□	ARC 11-97-87-09% OAI61 ORBITER + RAKES	.000	.000	.000	-7.170	LRFF	474.8000	IN.
FETX07	◇	ARC 11-97-87-09% OAI61 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	938.6800	IN.
FETX01	△	ARC 11-97-87-09% OAI61 ORBITER - WING + RAKES	.000	.000	.000	-7.170	XMPP	1076.6800	IN. XO
							YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0000	

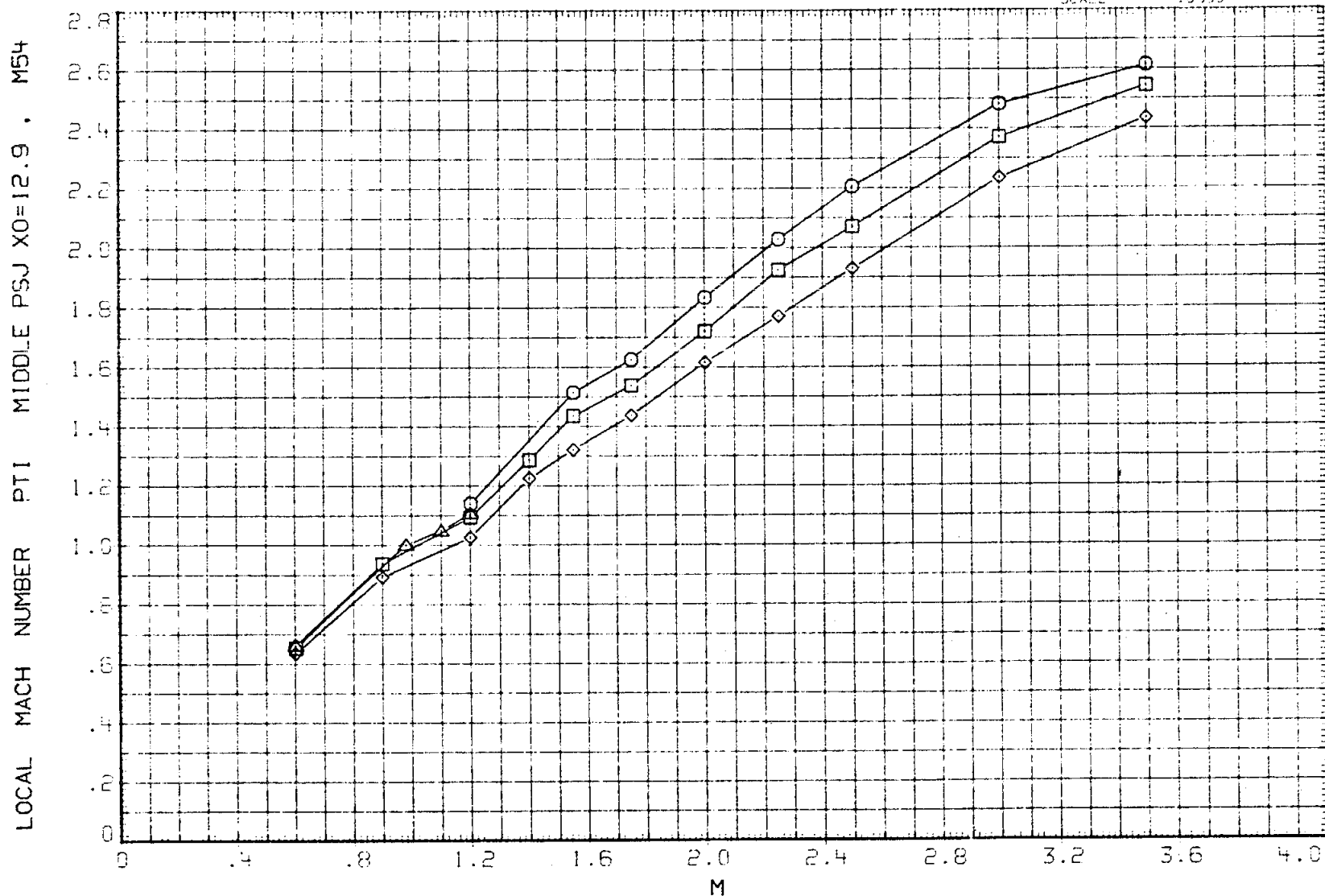


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

(A) ALPHA = .00



DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
11-97-87-094	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50.FT.
11-97-87-094	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
11-97-87-094	△	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6000	IN.
11-97-87-094	◇	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	XMWP	1076.6000	IN. XO
							YMWP	.0000	IN. YO
							ZMWP	375.0000	IN. ZO
							SCALE	.0300	

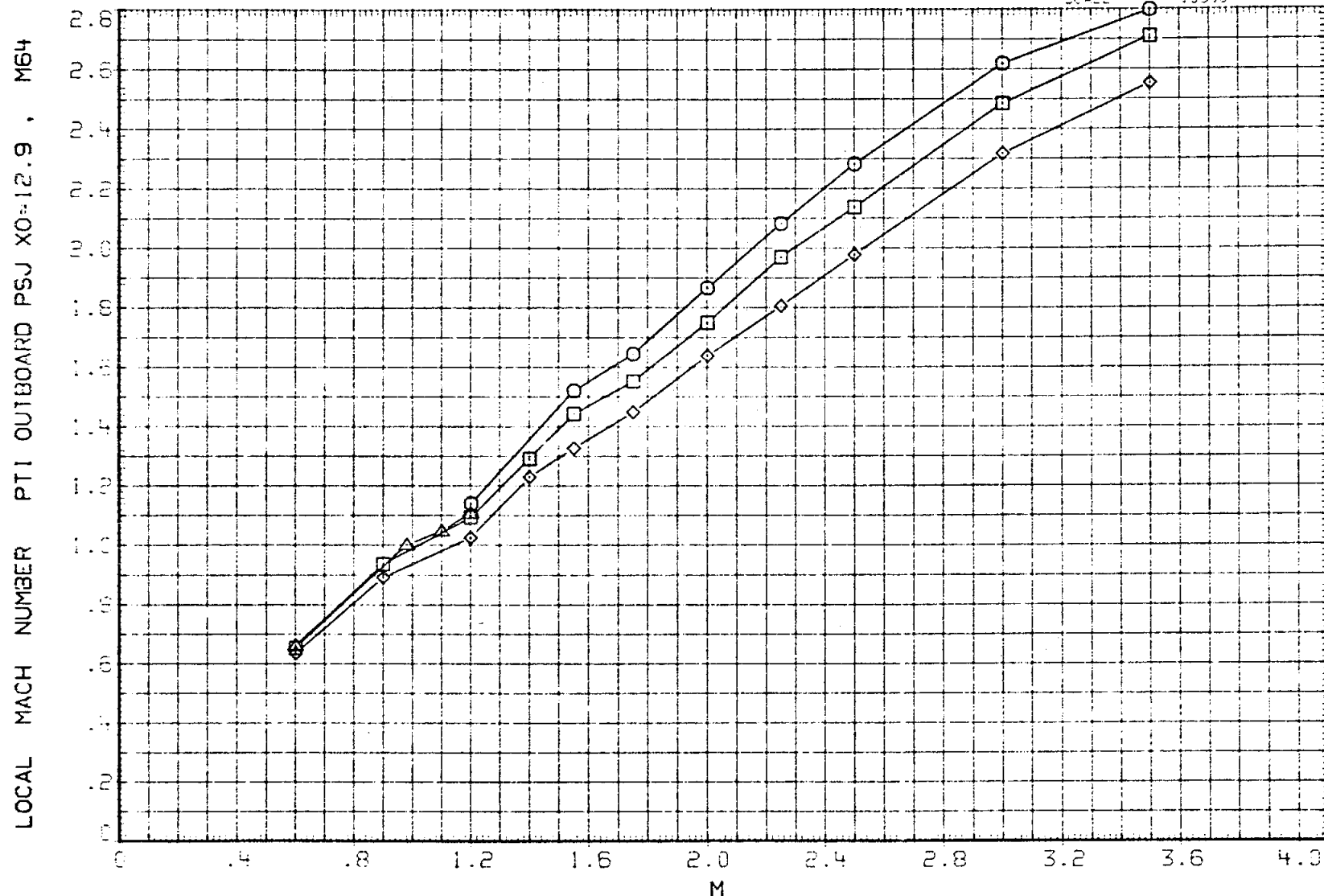


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILERON	BD FLAP	REFERENCE INFORMATION	
001	ARC 11-87-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SWEP	2690.0000 SQ. FT.
002	ARC 11-87-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LEEF	475.8500 IN.
003	ARC 11-87-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BEFF	936.6800 IN.
004	DATA NOT AVAILABLE	.000	.000	.000	-7.170	XMSP	1076.6800 IN. XO
						YMSP	.0000 IN. YO
						ZMSP	375.0000 IN. ZO
						SCALE	.0300

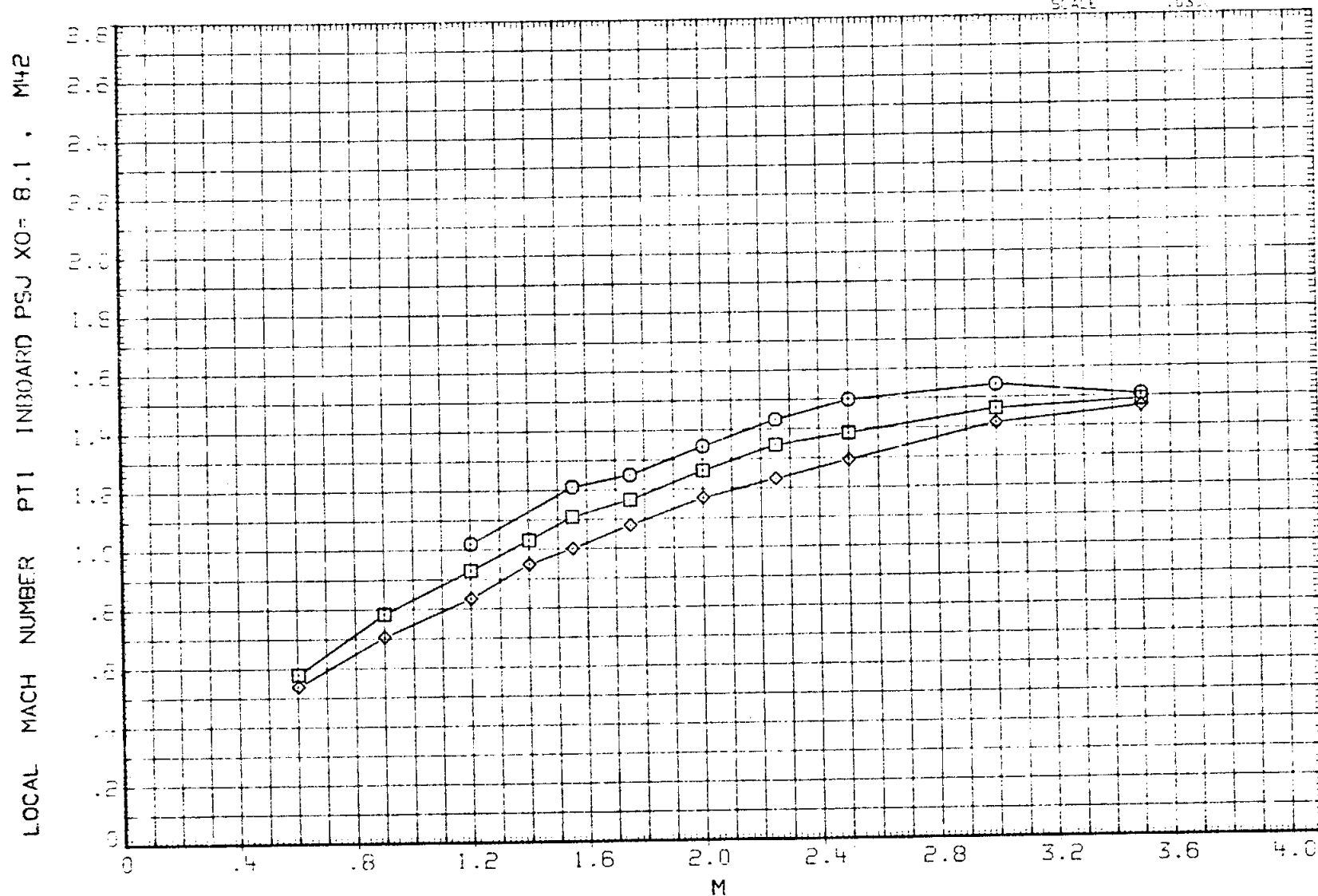


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

ALPHA = 6.00

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BDFLAP

REFERENCE INFORMATION

FE7X03 ○ ARC 11-97-87-094 04161 ORBITER + RAKES  
 FE7X05 □ ARC 11-97-87-094 04161 ORBITER + RAKES  
 FE7X07 ◇ ARC 11-97-87-094 04161 ORBITER + RAKES  
 FE7X01 △ DATA NOT AVAILABLE

-5.000  
 .000  
 5.000  
 .000

.000  
 .000  
 .000  
 .000

.000  
 .000  
 .000  
 .000

-7.170  
 -7.170  
 -7.170  
 -7.170

SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6900 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0500

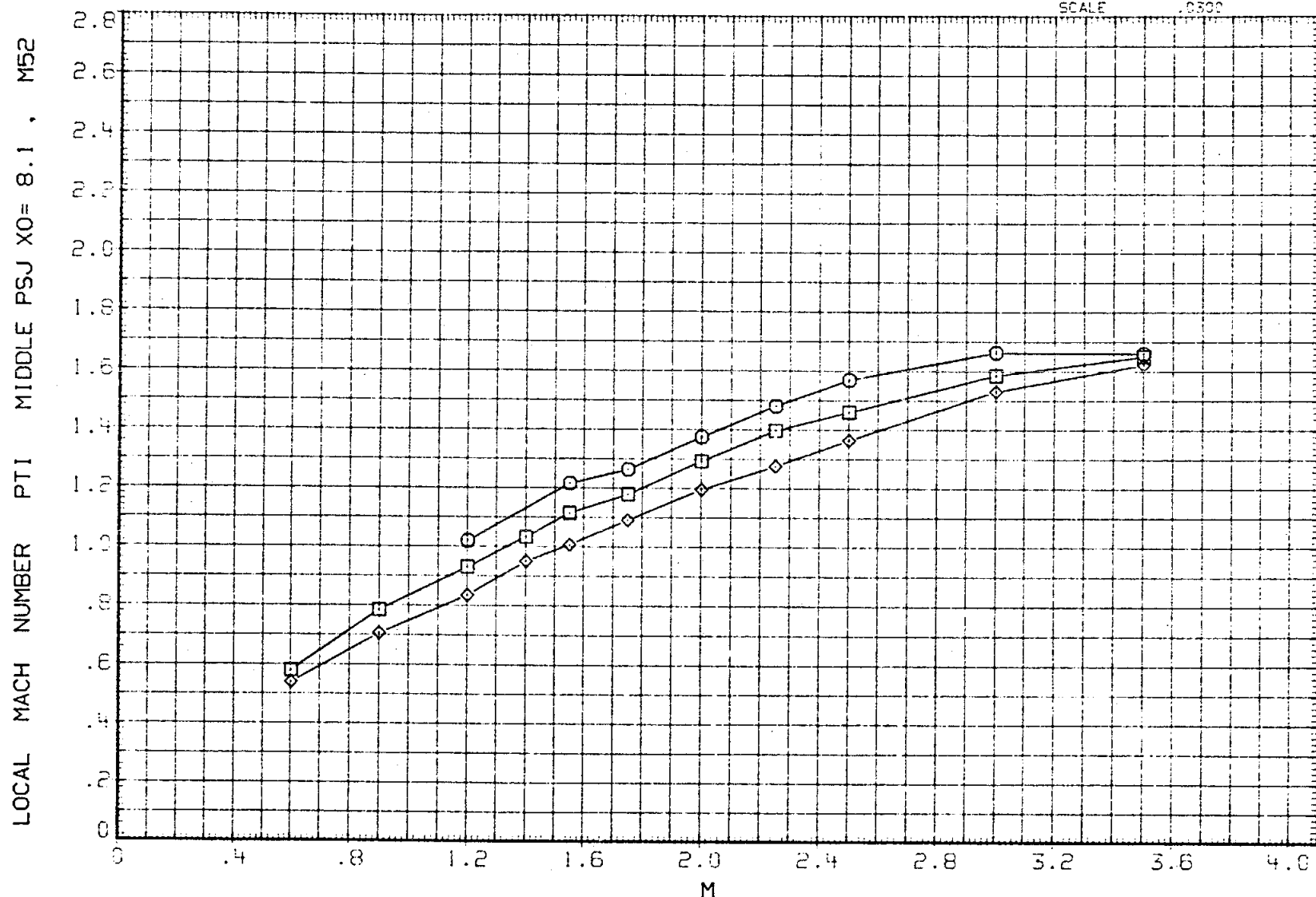


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

(B) ALPHA = 6.00

DATA SET	SYMBOL	CONFIGURATION
FE7X03	○	ARC 11-97-87-09- OA161 ORBITER + RAKES
FE7X05	□	ARC 11-97-87-09- OA161 ORBITER + RAKES
FE7X07	◇	ARC 11-97-87-09- OA161 ORBITER + RAKES
FE7X01	△	DATA NOT AVAILABLE

BETA	ELEVON	AILRON	BDCLAP
-5.000	.000	.000	-7.170
.000	.000	.000	-7.170
5.000	.000	.000	-7.170
.000			

REFERENCE INFORMATION	
SRFT	2690.0000 SQ. FT.
LRFT	474.2000 IN.
BRFT	938.0800 IN.
XXRP	1676.5800 IN. XO
YYRP	.0000 IN. YO
ZZRP	375.0000 IN. ZO
SCALE	.0000

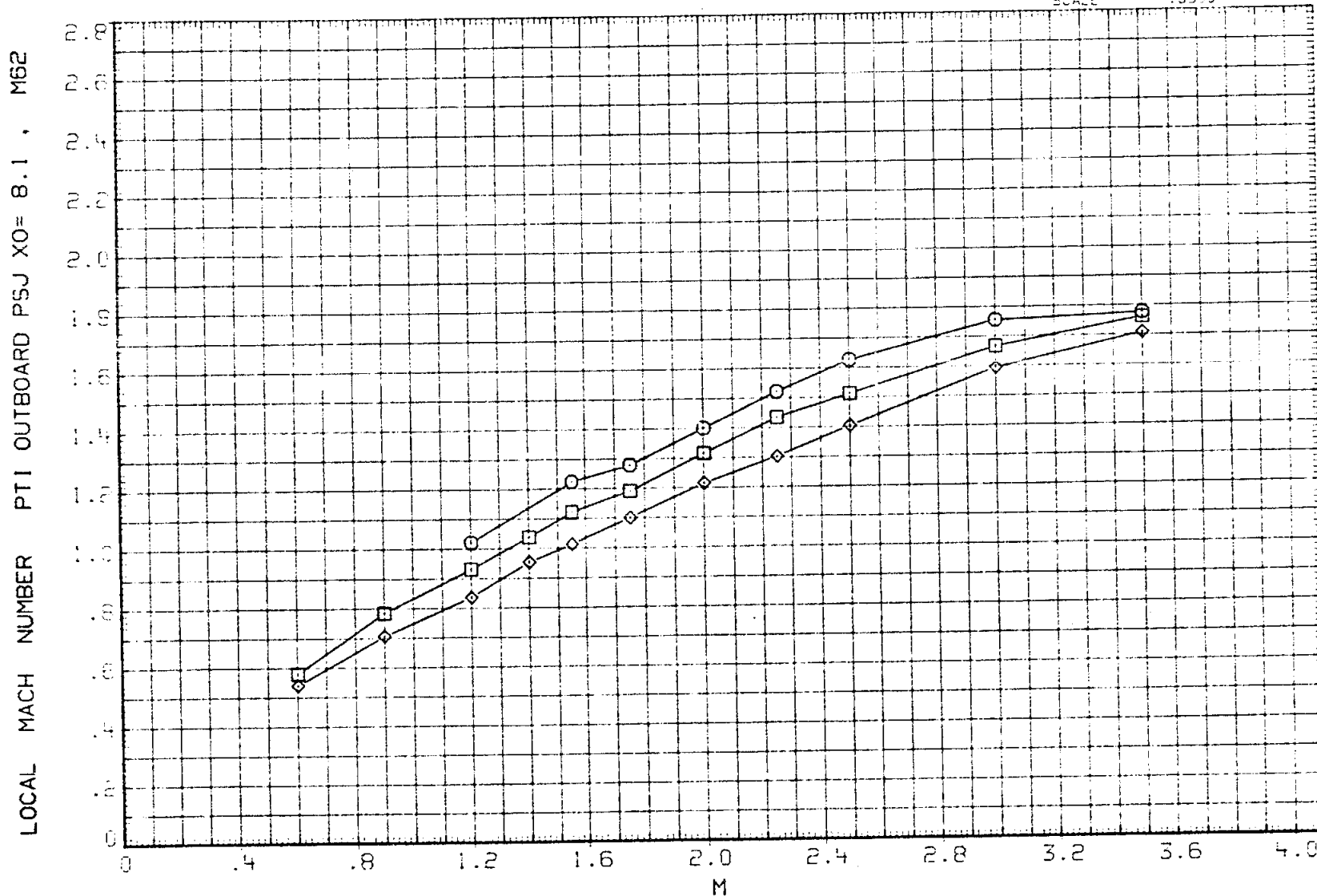


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

(B) ALPHA = 6.00

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
FE7X03	○ ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
FE7X05	□ ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
FE7X07	◇ ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	935.6900	IN.
FE7X01	△ DATA NOT AVAILABLE	.000			-7.170	XMRP	1076.6800	IN. X0
						YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0000	

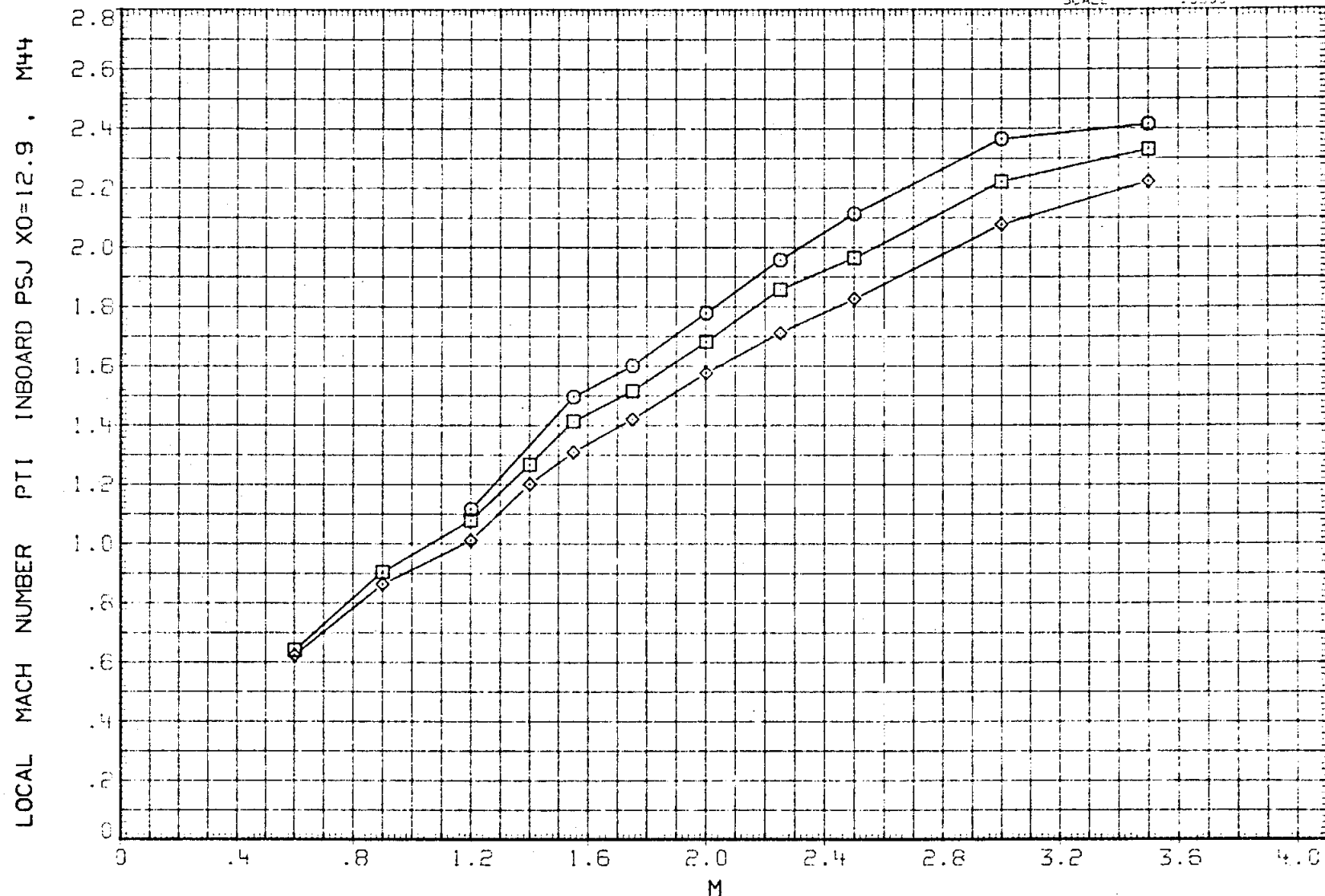


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
RETXX03	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SPEC	2590.0000	50. FT.
RETXX06	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.0000	.000	.000	-7.170	LEOF	1774.0000	IN.
RETXX07	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6900	IN.
RETXX01	△	DATA NOT AVAILABLE	.000			-7.170	YMRP	1076.6600	IN. X0
							YMRP	.0000	IN. Y0
							ZMRP	375.0000	IN. Z0
							SCALE	1.0000	

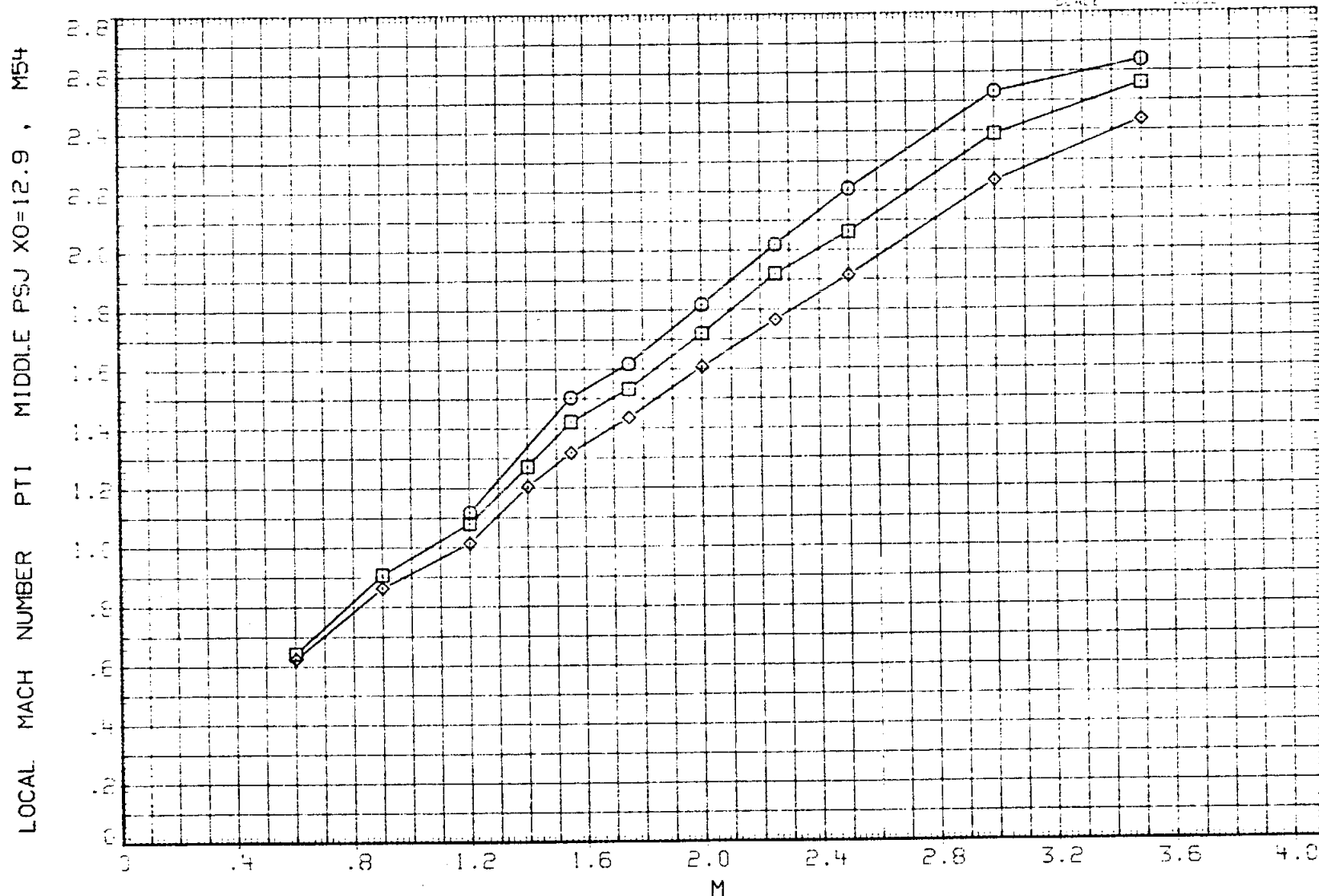


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

(B) ALPHA = 6.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
FE7X03	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
FE7X05	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
FE7X07	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
FE7X01	△	DATA NOT AVAILABLE	.000			-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

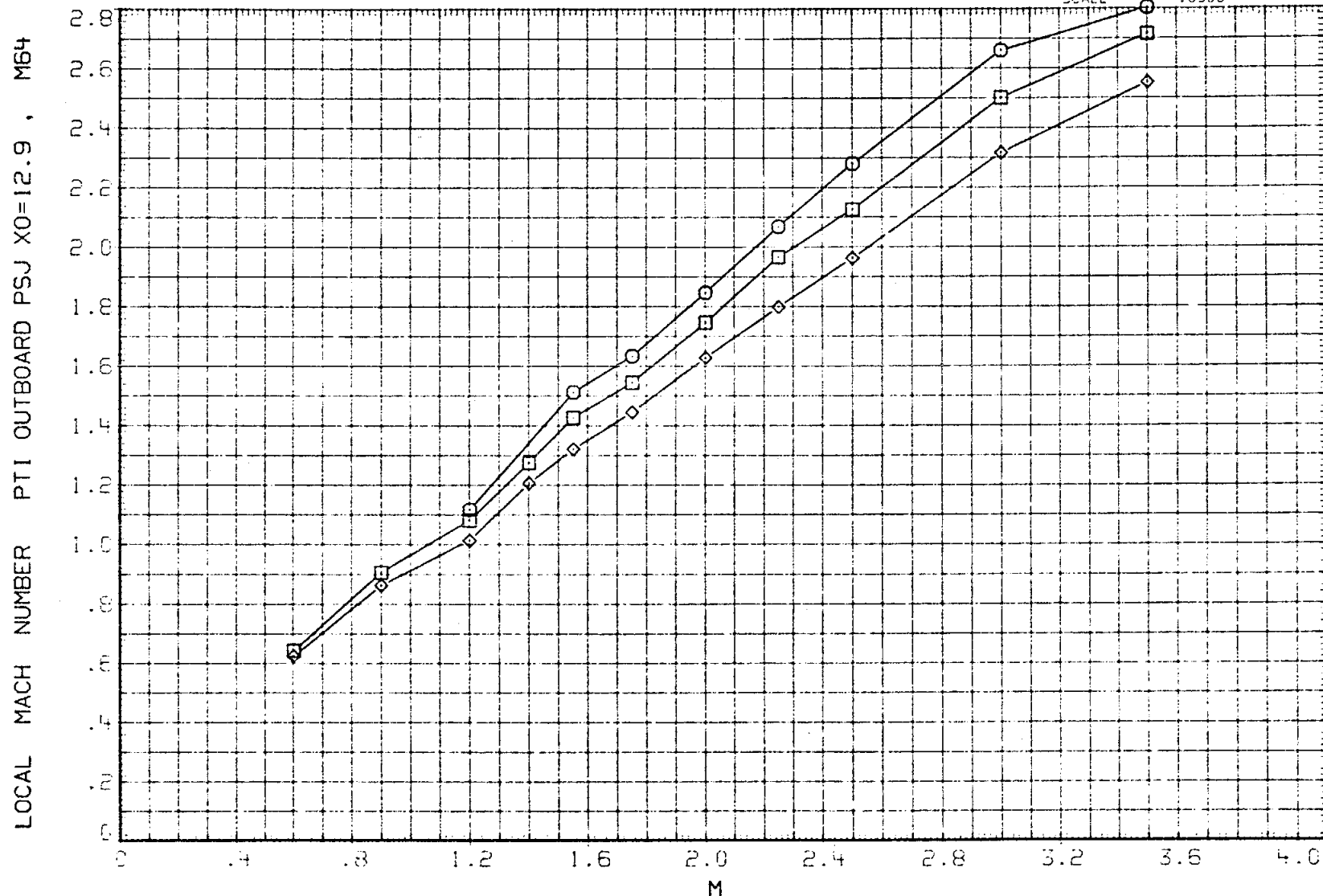


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

SDFLAP

REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	SDFLAP
FE7X03	ARC 11-97-87-094 OA161 ORBITER - RAKES	-5.000	.000	.000	-7.170
FE7X05	ARC 11-97-87-094 OA161 ORBITER - RAKES	.000	.000	.000	-7.170
FE7X07	ARC 11-97-87-094 OA161 ORBITER - RAKES	5.000	.000	.000	-7.170
FE7X01	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000			

REFERENCE INFORMATION	VALUE	UNIT
SREF	2600.0000	SQ.FT.
LRSP	474.8000	IN.
BRSP	935.6000	IN.
XMRP	1075.6000	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0000	

LOCAL MACH NUMBER PTI INBOARD PSJ XO= 8.1 , M42

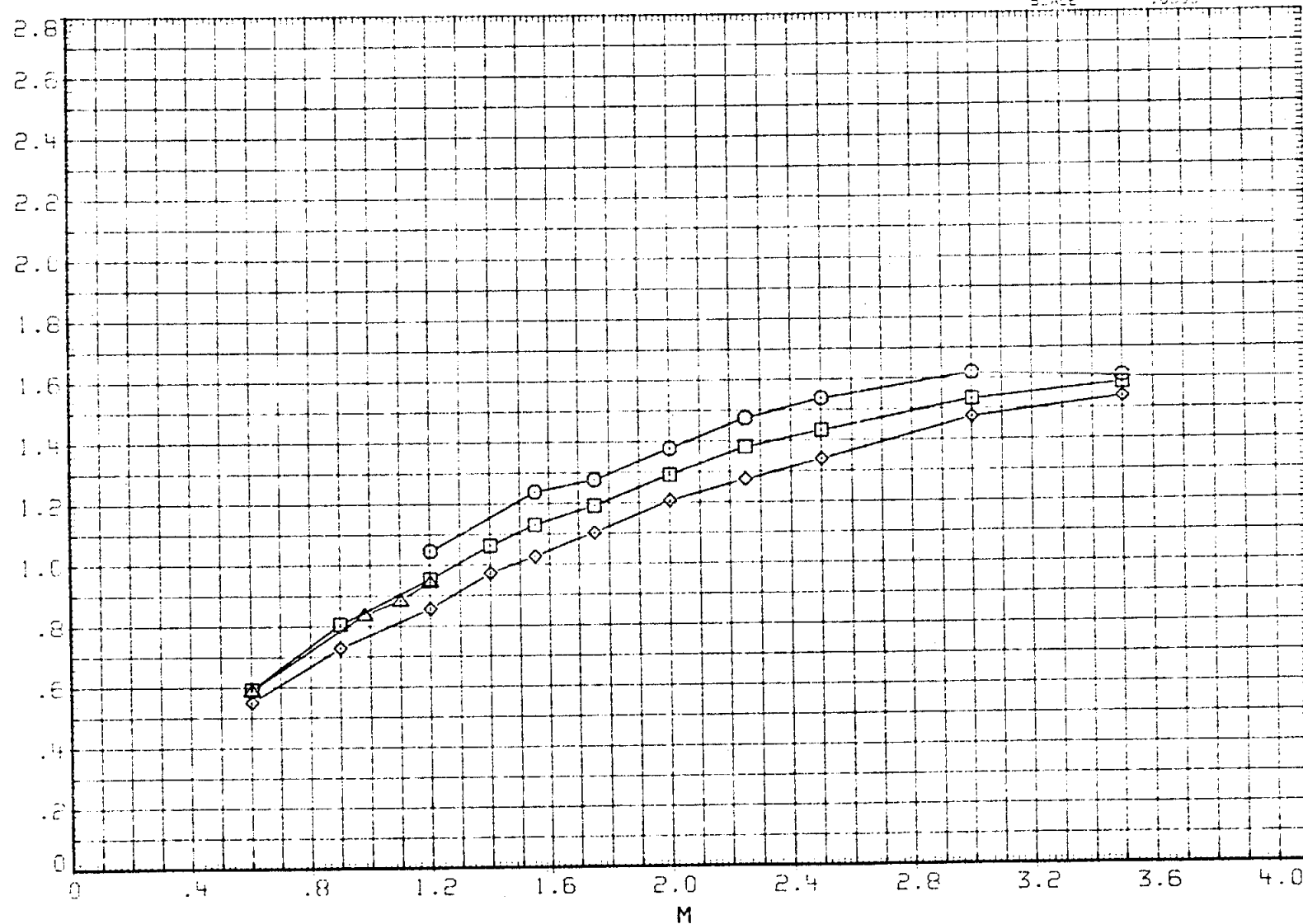


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

(C) ALPHA = 12.00



DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
FE7X03	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50. FT.
FE7X05	□	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
FE7X07	◇	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
FE7X01	△	ARC 11-97-87-094 0A161 ORBITER - WING + RAKES	.000			-7.170	XMRF	1076.6800	IN. XO
							YMRF	.0000	IN. YO
							ZMRF	375.0000	IN. ZO
							SCALE	.0300	

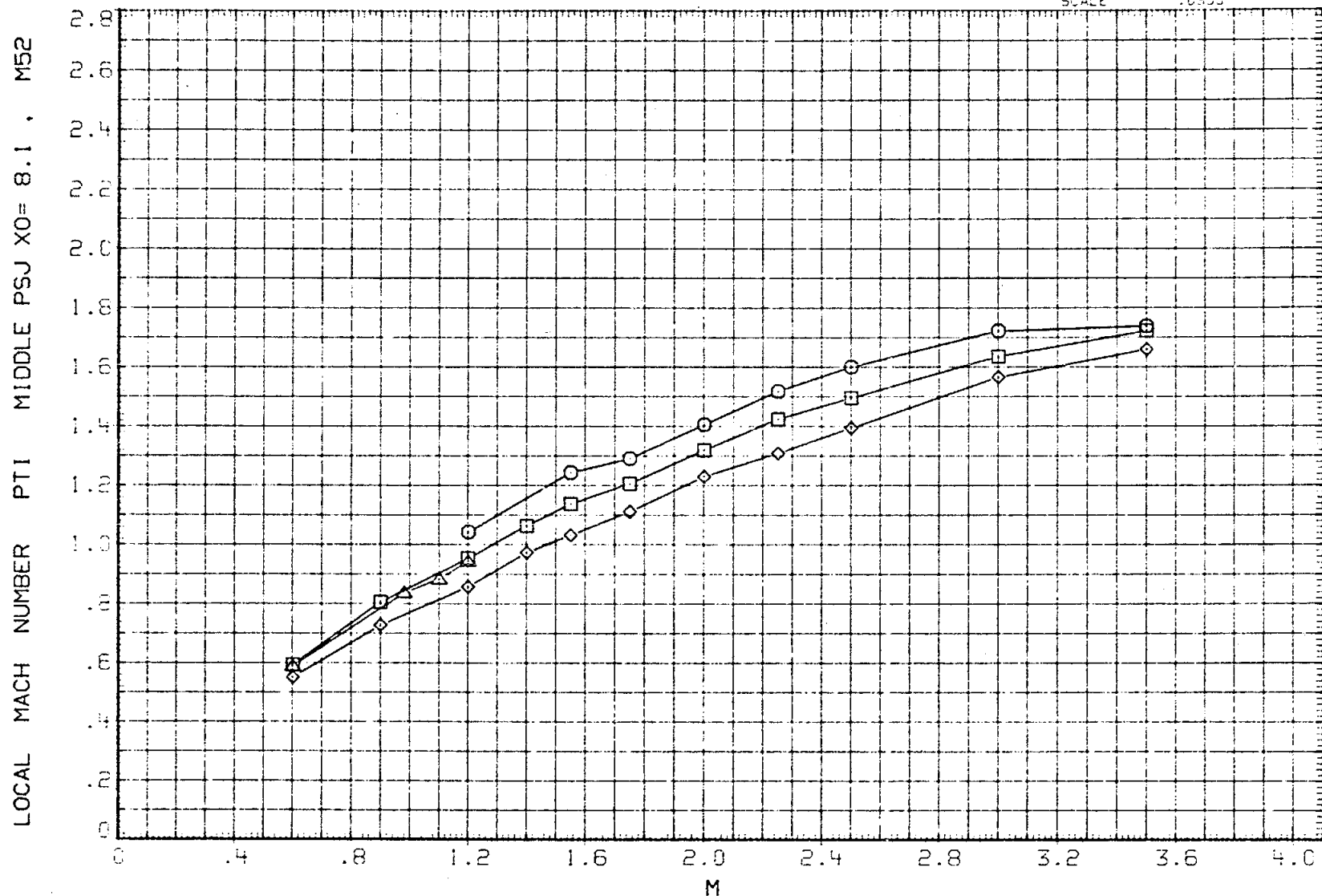


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILERON	BDFLAP	REFERENCE INFORMATION		
REFX03	○	ARC 11-97-87-094 OA161 ORBITER * RAKES	-5.000	.000	.000	-7.170	SPRF	2590.0000	SQ.FT.
REFX05	□	ARC 11-97-87-094 OA161 ORBITER * RAKES	.000	.000	.000	-7.170	LRFT	474.0000	IN.
REFX07	◇	ARC 11-97-87-094 OA161 ORBITER * RAKES	5.000	.000	.000	-7.170	BRFT	935.6900	IN.
REFX01	△	ARC 11-97-87-094 OA161 ORBITER * WING * RAKES	.000	.000	.000	-7.170	XMWP	1076.0000	IN. XO
							YMWP	.0000	IN. YO
							ZMWP	375.0000	IN. ZO
							SCALE	.0300	

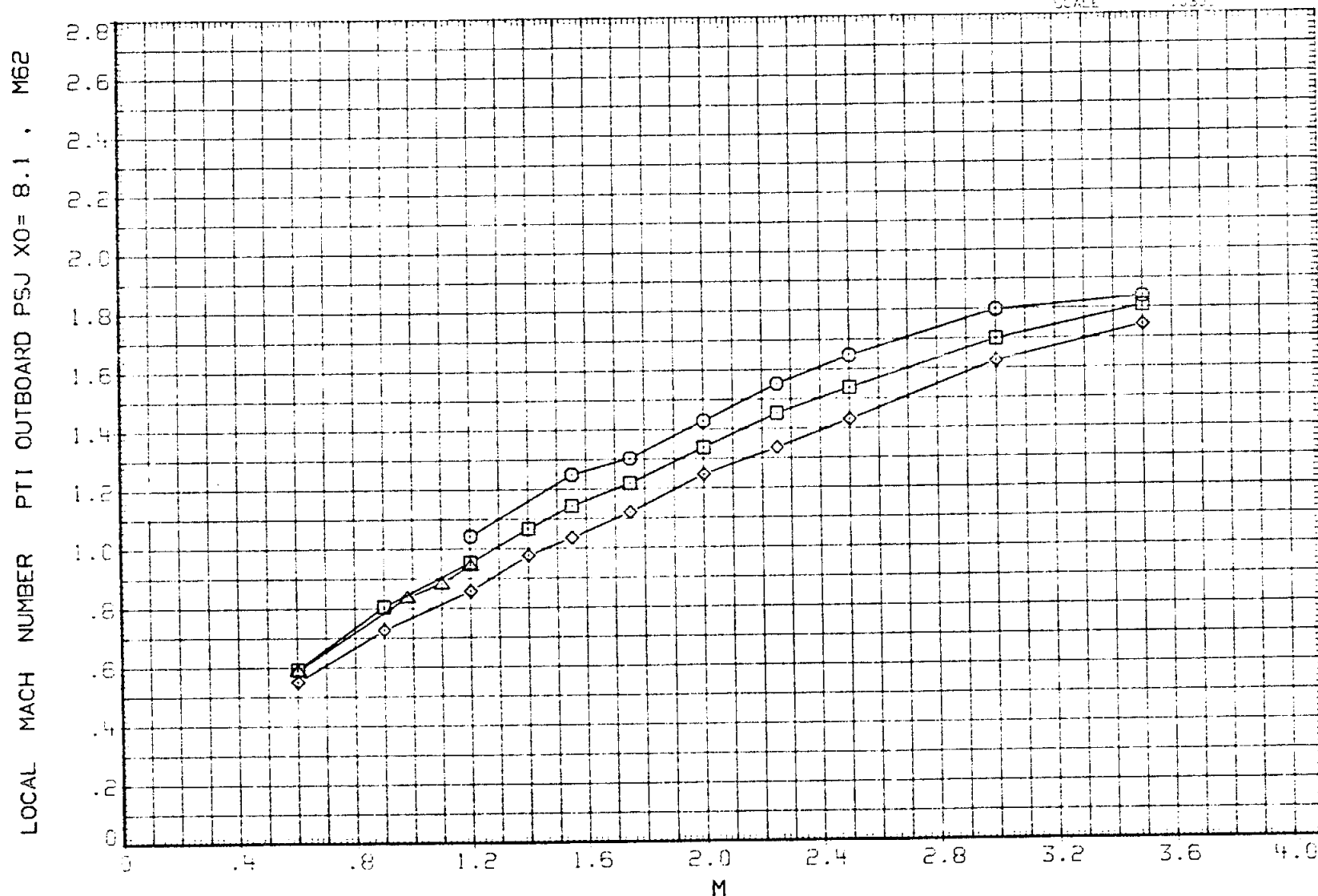


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

(C) ALPHA = 12.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
FE7X03	○	ARC 11-97-87-09+ 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50.FT.
FE7X05	□	ARC 11-97-87-09+ 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
FE7X07	◇	ARC 11-97-87-09+ 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	935.6800	IN.
FE7X01	△	ARC 11-97-87-09+ 0A161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	XMPP	1076.6800	IN. XO
							YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0350	

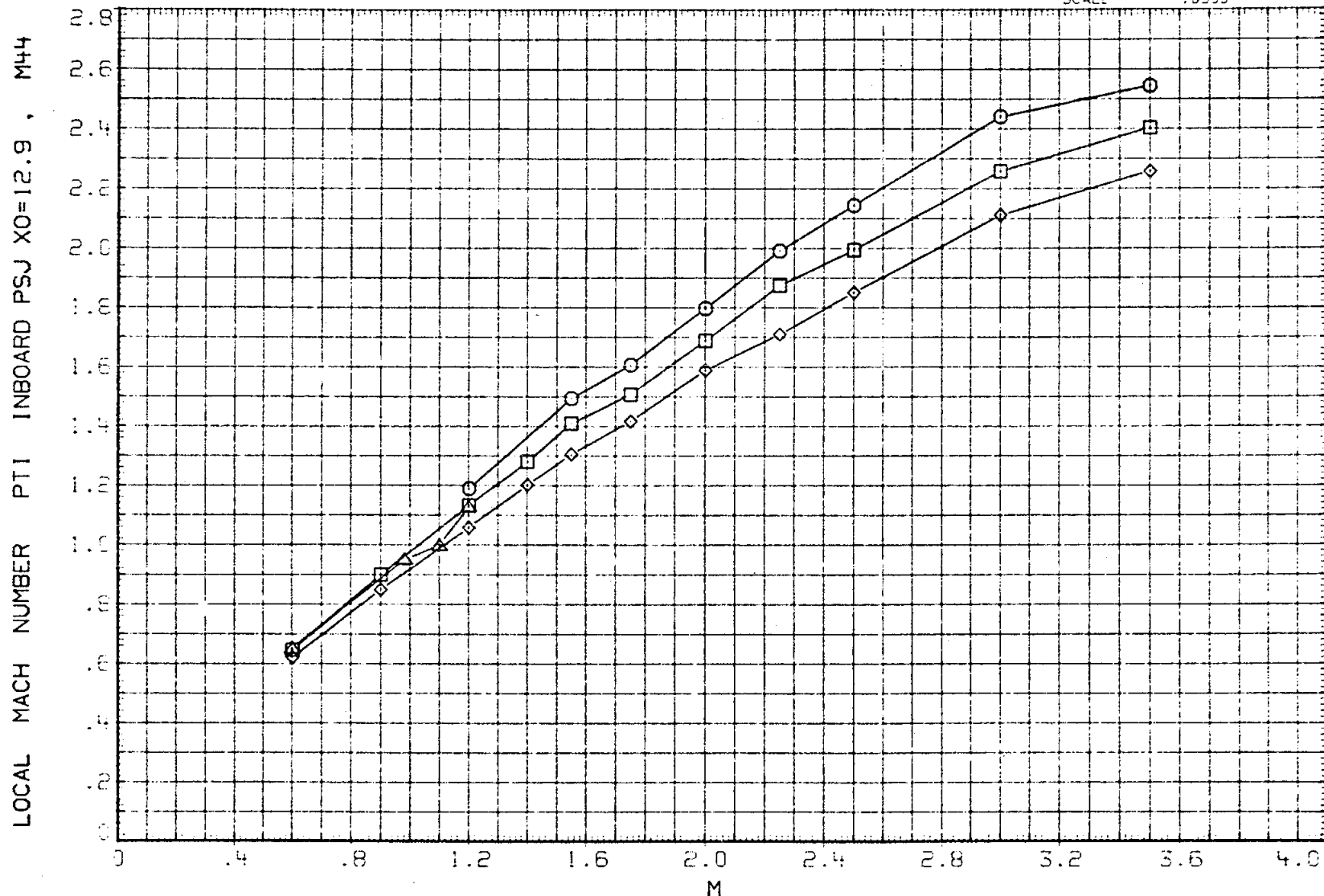


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AIRLON	BOFLAP	REFERENCE INFORMATION		
FE7X03	○	ARC 11-97-87-094 04161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SRF	7890.0000	50. FT.
FE7X05	□	ARC 11-97-87-094 04161 ORBITER + RAKES	.000	.000	.000	-7.170	REF	474.0000	IN.
FE7X07	◇	ARC 11-97-87-094 04161 ORBITER + RAKES	5.000	.000	.000	-7.170	SRF	936.6000	IN.
FE7X01	△	ARC 11-97-87-094 04161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	XMRP	1076.6000	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0000	

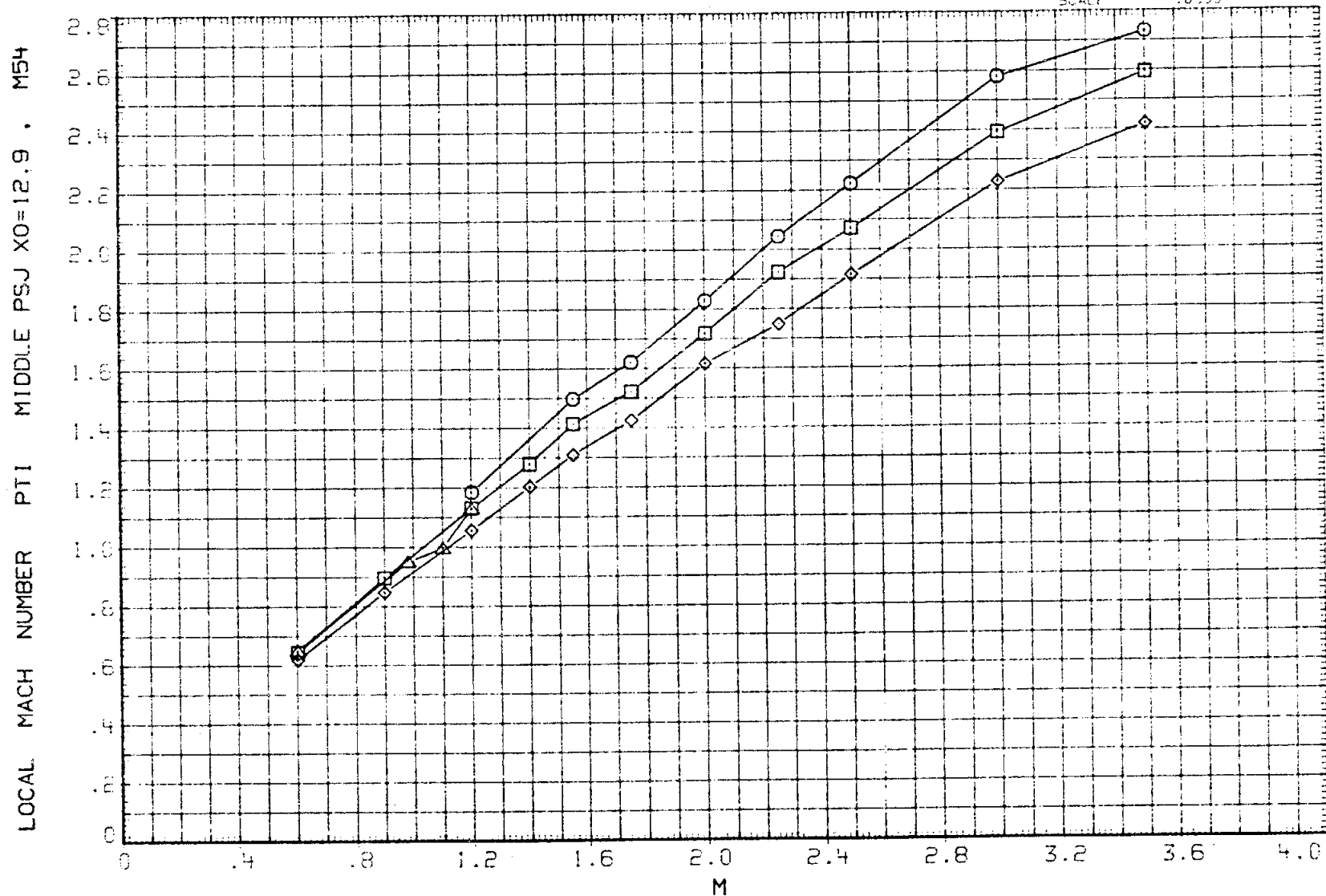


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

(C) ALPHA = 12.00

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
FE7X03 ○	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
FE7X05 □	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
FE7X07 ◇	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	935.6800	IN.
FE7X01 △	ARC 11-97-87-094 0A161 ORBITER - WING + RAKES	.000			-7.170	XMPP	1076.6800	IN. X0
						YMPP	.0000	IN. Y0
						ZMPP	75.0000	IN. Z0
						SCALE	.0300	

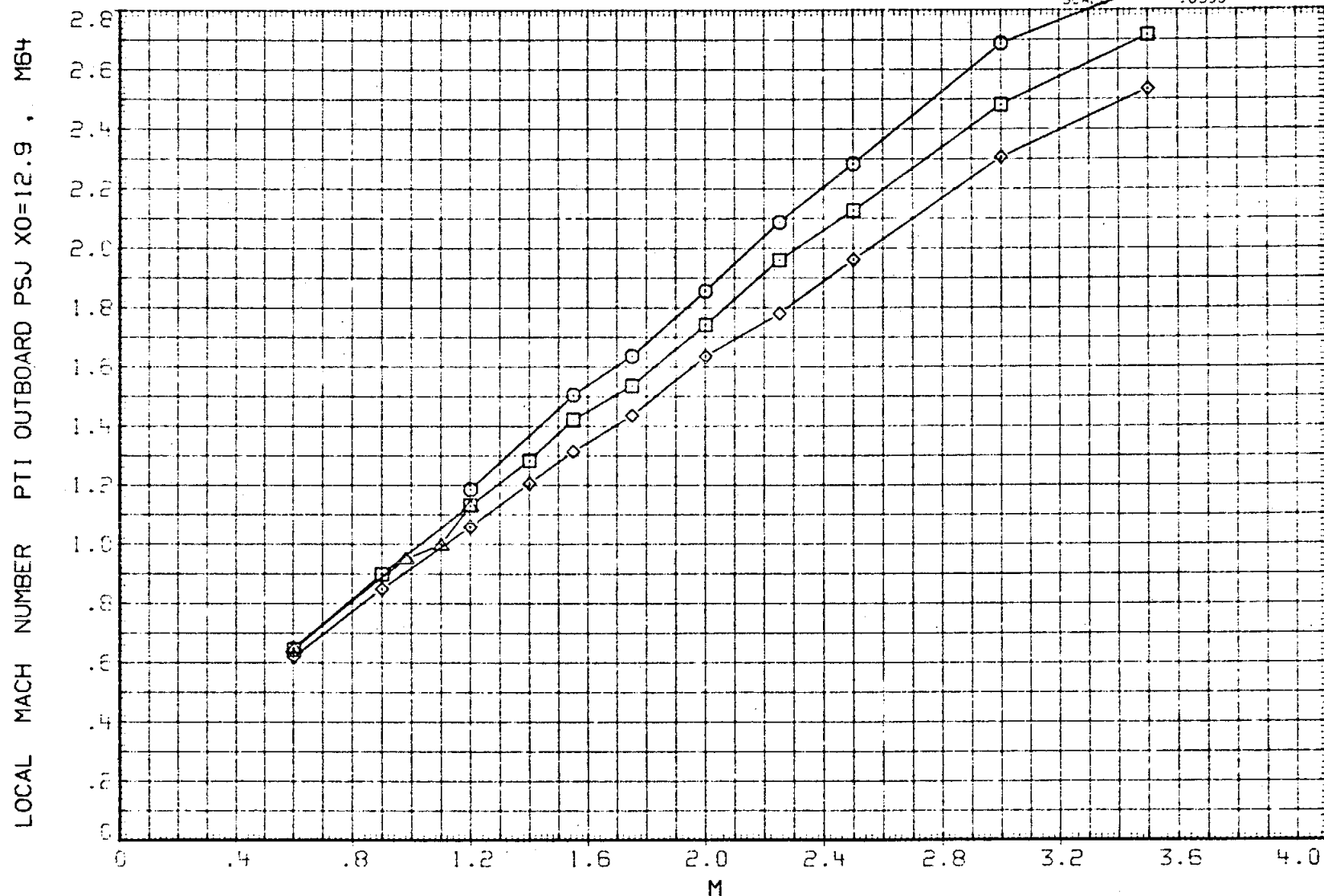


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

DATA SET SYMBOL		CONFIGURATION	BETA	ELEVON	AILRON	BDCLAP	REFERENCE INFORMATION		
100	100	ARC 11-97-87-094 CA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2695.0000	50. FT.
100	100	ARC 11-97-87-094 CA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
100	100	ARC 11-97-87-094 CA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
100	100	DATA NOT AVAILABLE	.000				XMPP	1076.6800	IN. XO
							YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0300	

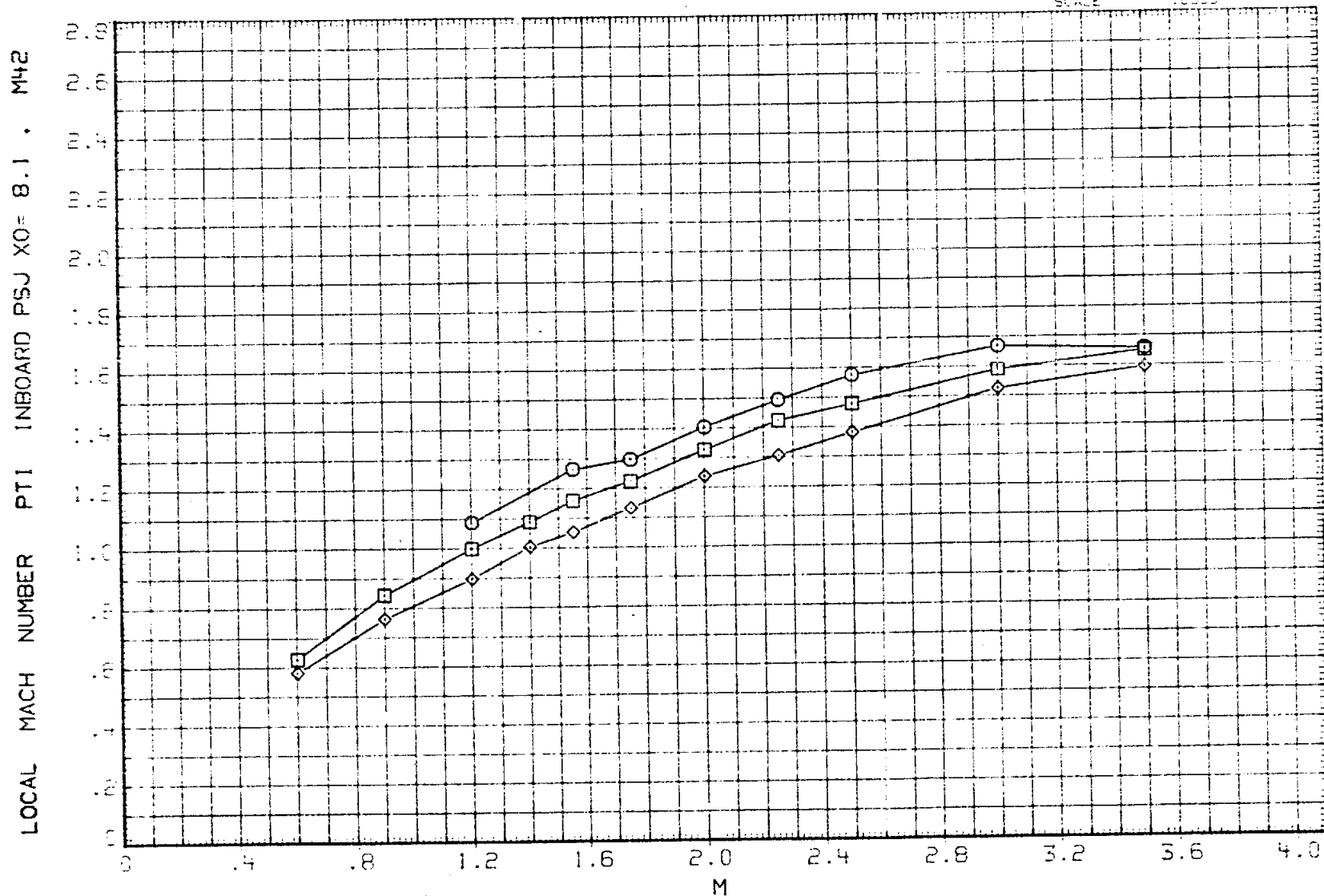


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

(D) ALPHA = 18.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
FETX03	○	ARC 11-97-87-09+ OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50.FT.
FETX05	□	ARC 11-97-87-09+ OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
FETX07	◇	ARC 11-97-87-09+ OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
FETX01	△	DATA NOT AVAILABLE	.000				XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0390	

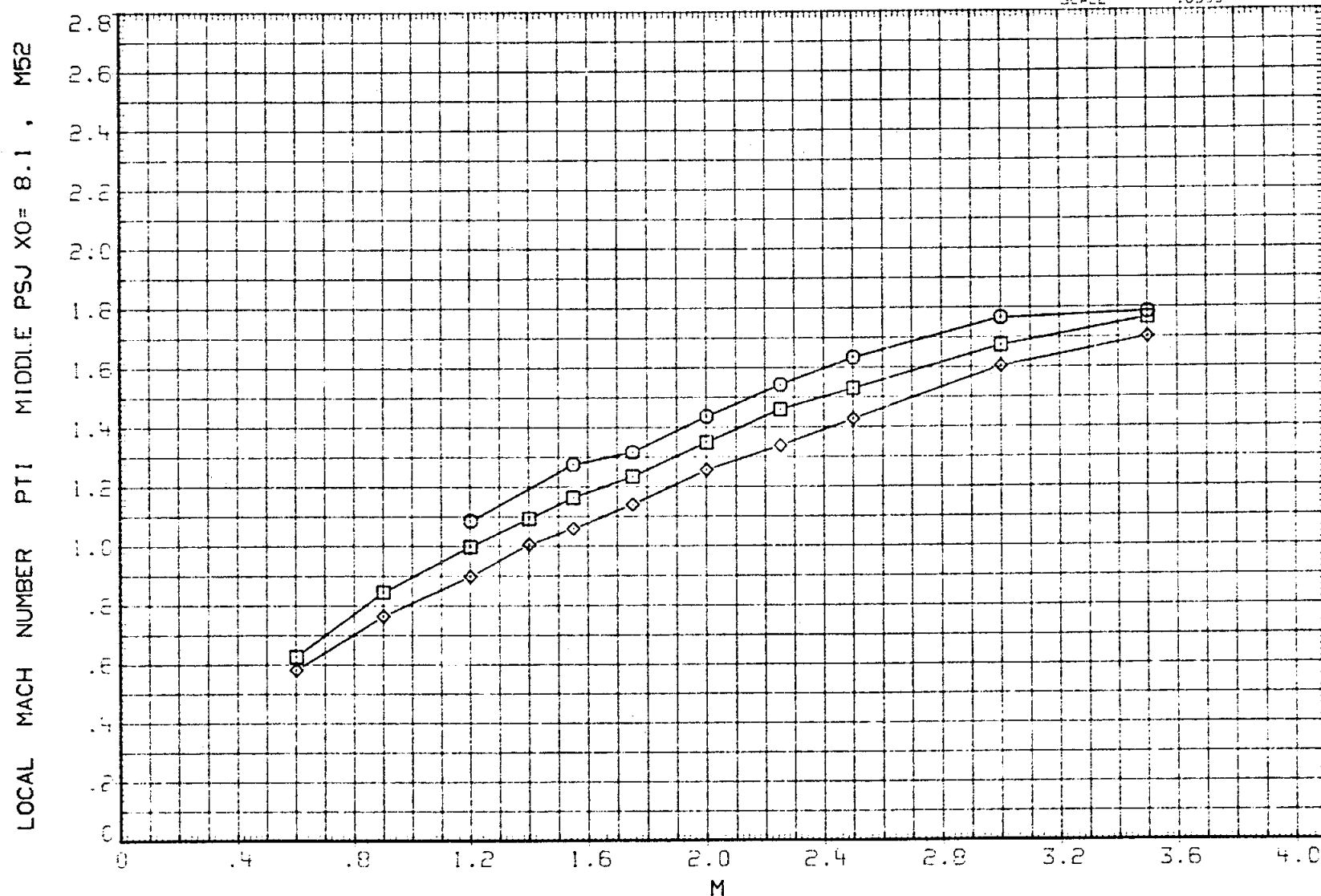


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	WHLRON	BDLAT	REFERENCE INFORMATION		
PERVON	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	SPRF	2590.0000	50.75
PERVON	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LRPF	474.8000	10
PERVON	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	SRPF	938.6800	10
PERVON	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	XMRF	1076.6800	10
PERVON	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	YMRF	1076.6800	10
PERVON	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	ZMRF	375.0000	10
PERVON	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	SCALE	.0000	10

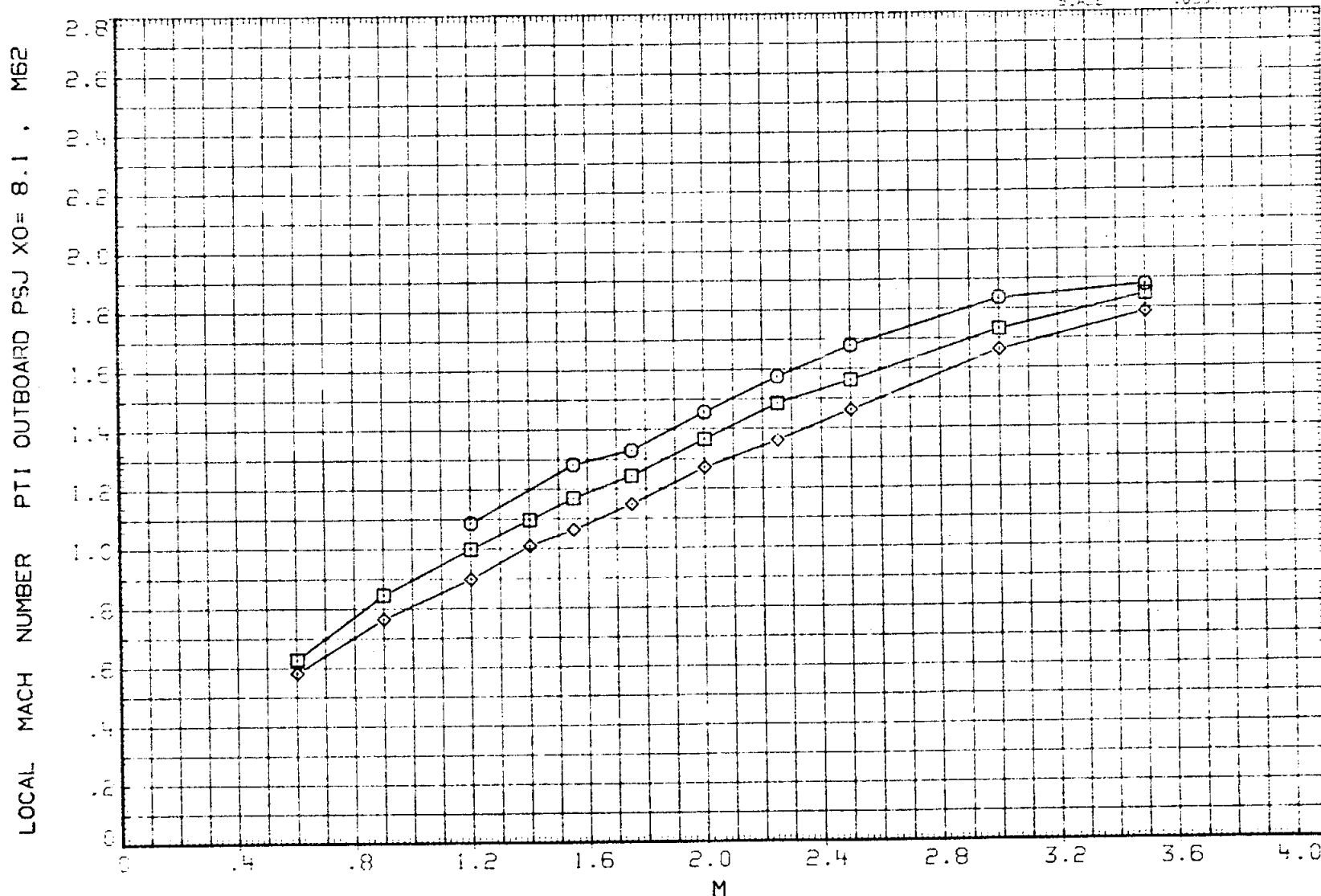


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

(D) ALPHA = 18.00



DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
FE7X03	○ ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
FE7X05	□ ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
FE7X07	◇ ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6900	IN.
FE7X01	△ DATA NOT AVAILABLE	.000			-7.170	XMRP	1076.6800	IN. XO
						YMRP	.0000	IN. YO
						ZMRP	375.0000	IN. ZO
						SCALE	.0300	

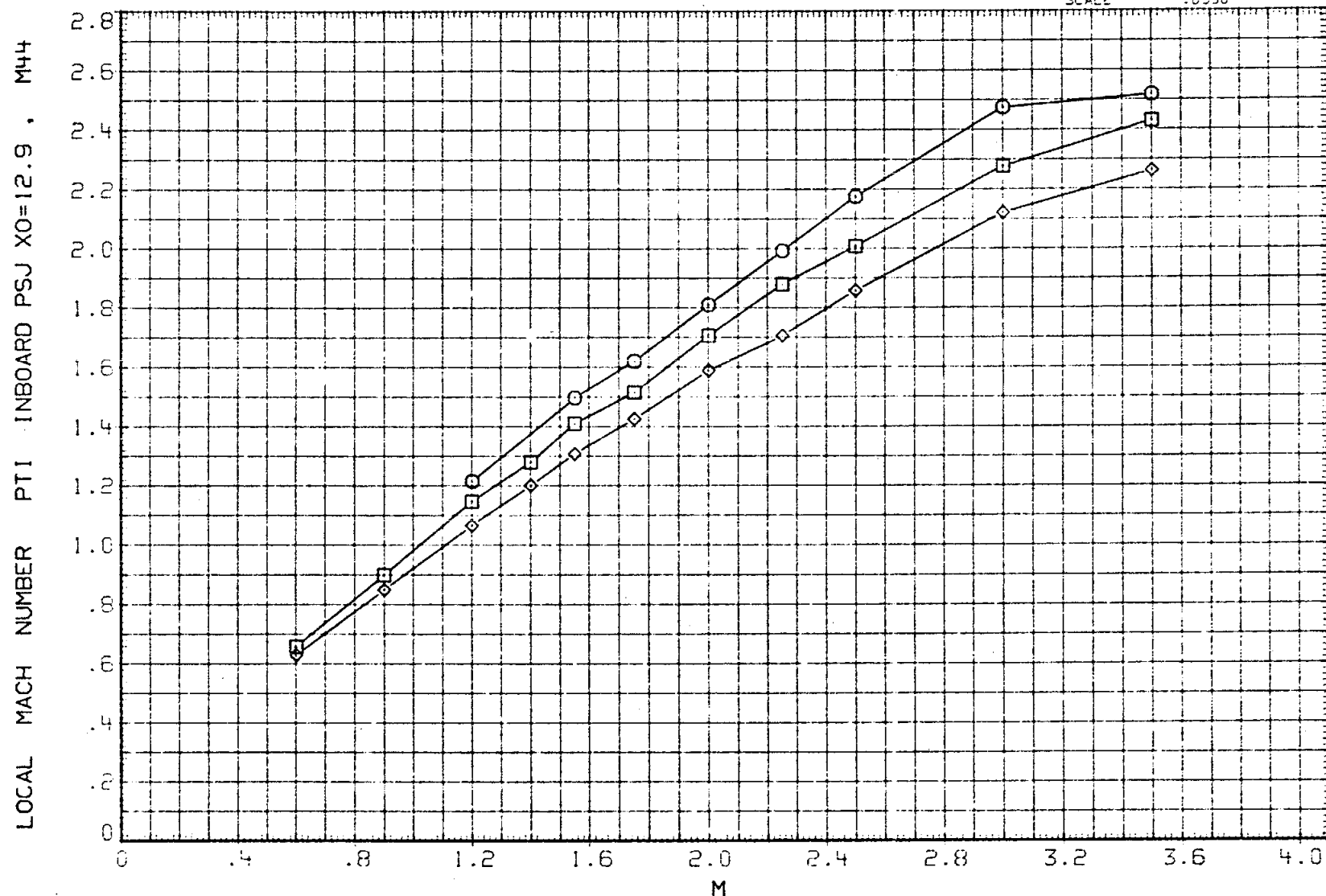


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BDTH 4F

REFERENCE INFORMATION

SPRF 2530.0000 SQ.FT.  
 LIFT 474.8000 IN.  
 DRG 935.6400 IN.  
 YMRP 1076.6200 IN. XO  
 XMRP 10000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE 0.0000

REFX01 ○ ARC 11-97-80-094 CA161 ORBITER \* RAKES  
 REFV01 □ ARC 11-97-87-094 CA161 ORBITER \* RAKES  
 REFV02 ◇ ARC 11-97-87-094 CA161 ORBITER \* RAKES  
 REFV03 △ DATA NOT AVAILABLE

-5.000  
 .000  
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.000  
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.000  
 .000  
 .000  
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-7.170  
 -7.170  
 -7.170  
 -7.170

LOCAL MACH NUMBER PT1 MIDDLE PSJ XO=12.9 , M54

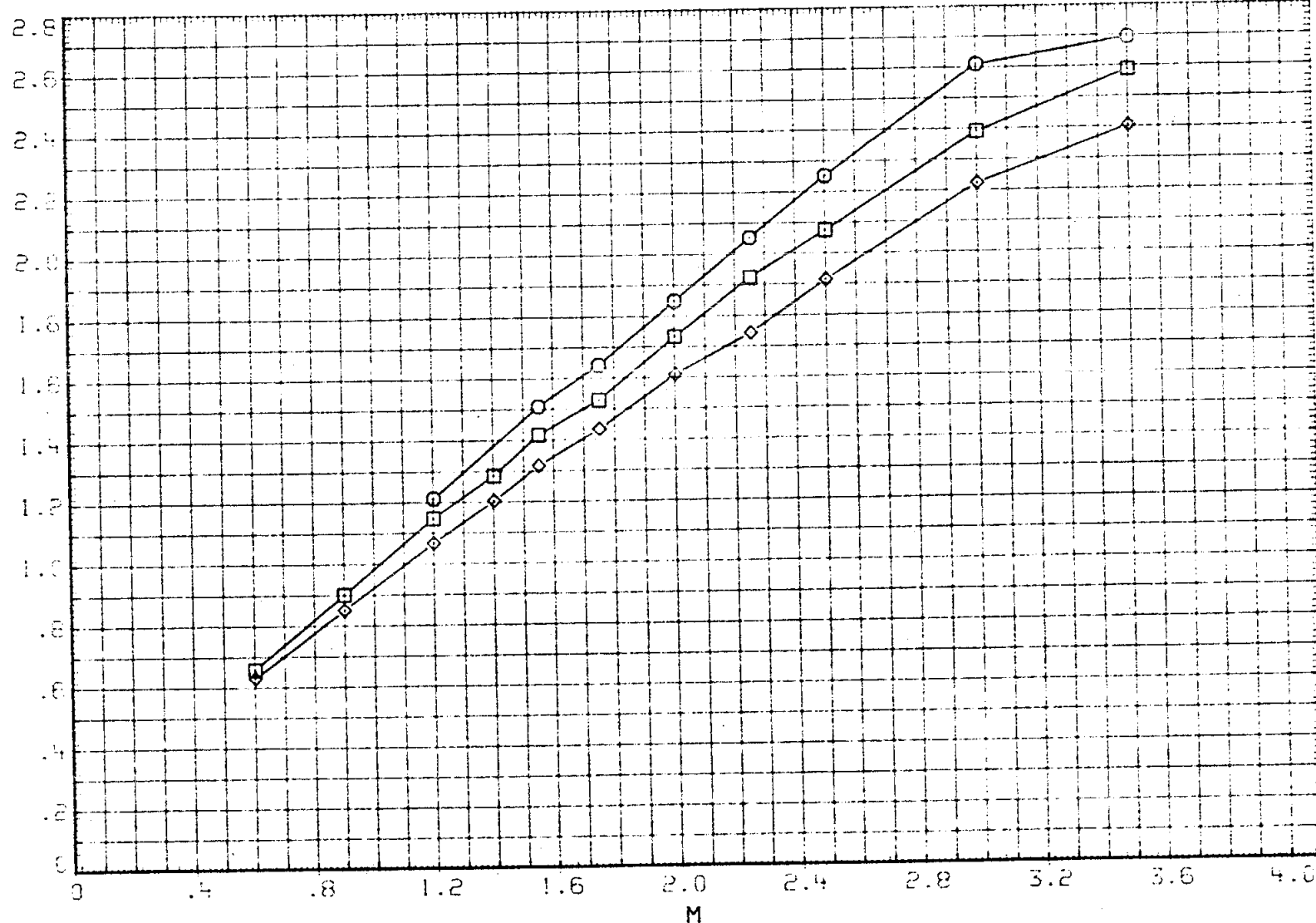


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

(D) ALPHA = 18.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
FE7X03	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50. FT.
FE7X05	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
FE7X07	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
FE7X01	△	DATA NOT AVAILABLE	.000			-7.170	YMRP	1076.6800	IN. X0
							YMRP	.0000	IN. Y0
							ZMRP	375.0000	IN. Z0
							SCALE	.0300	

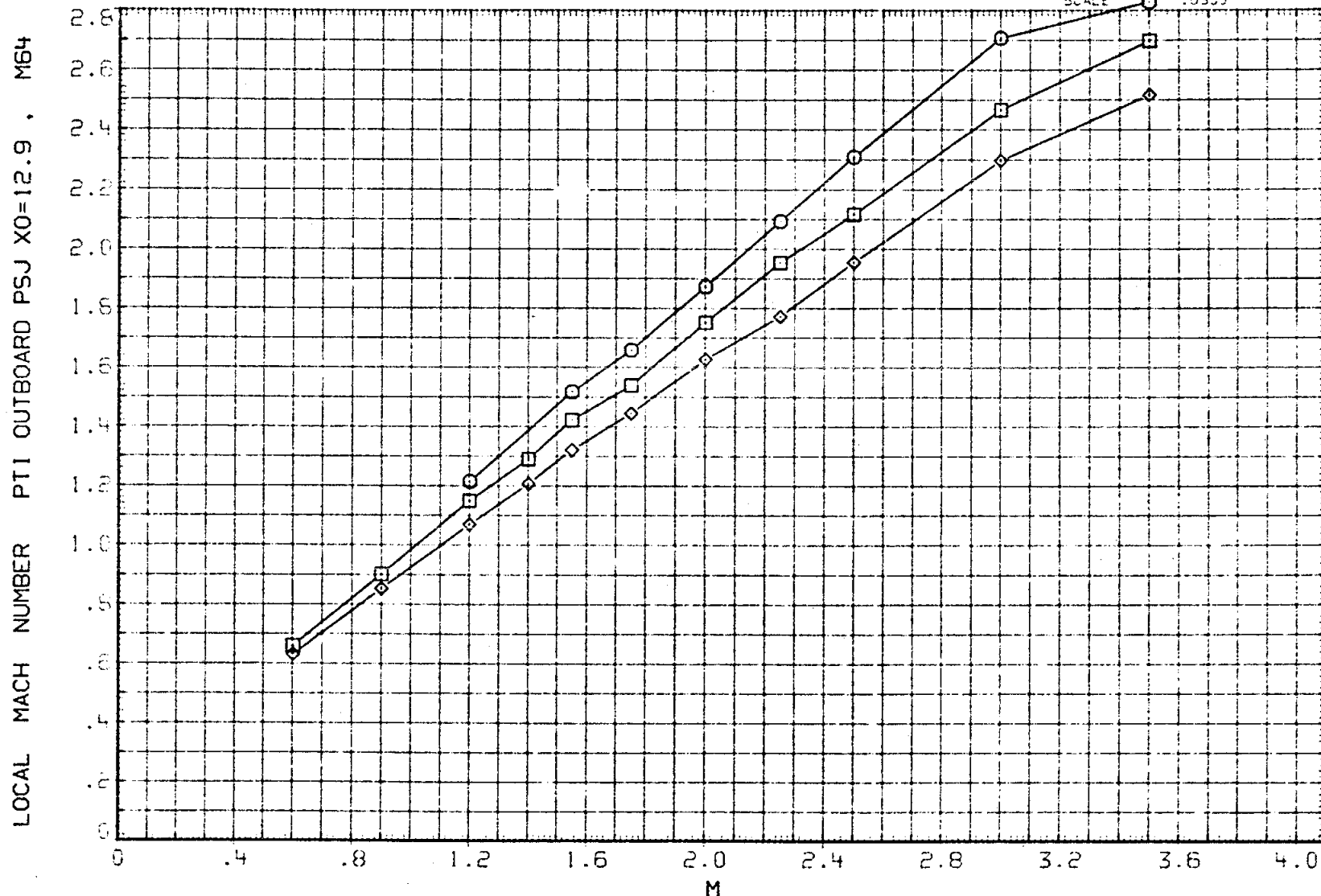


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

(D) ALPHA = 18.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	20CLAP	REFERENCE INFORMATION		
FE7X03	○	ARC 11-97-87-094 CA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	8890.0000	IN. Y0
FE7X05	□	ARC 11-97-87-094 CA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
FE7X07	◇	ARC 11-97-87-094 CA161 ORBITER + RAKES	5.000	.000	.000	-7.170	SREF	936.6900	IN.
FE7X01	△	ARC 11-97-87-094 CA161 ORBITER + WING + RAKES	.000	.000	.000	-7.170	XMRP	1076.6900	IN. X0
							YMRP	.0000	IN. Y0
							ZMRP	375.0000	IN. Z0
							SCALE	.0300	

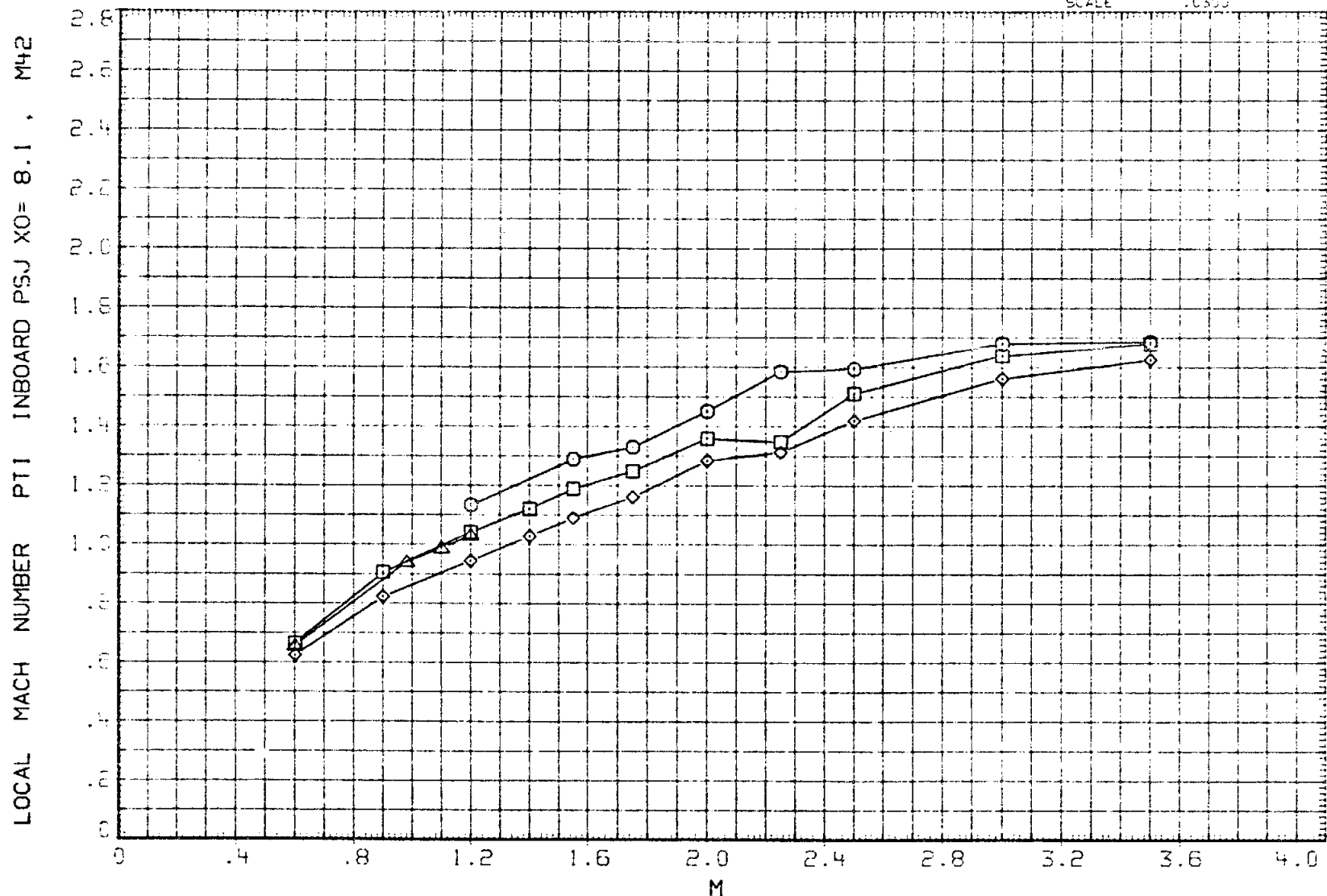


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

(E) ALPHA = 24.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
FE7X03	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
FE7X05	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
FE7X07	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
FE7X01	△	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000			-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

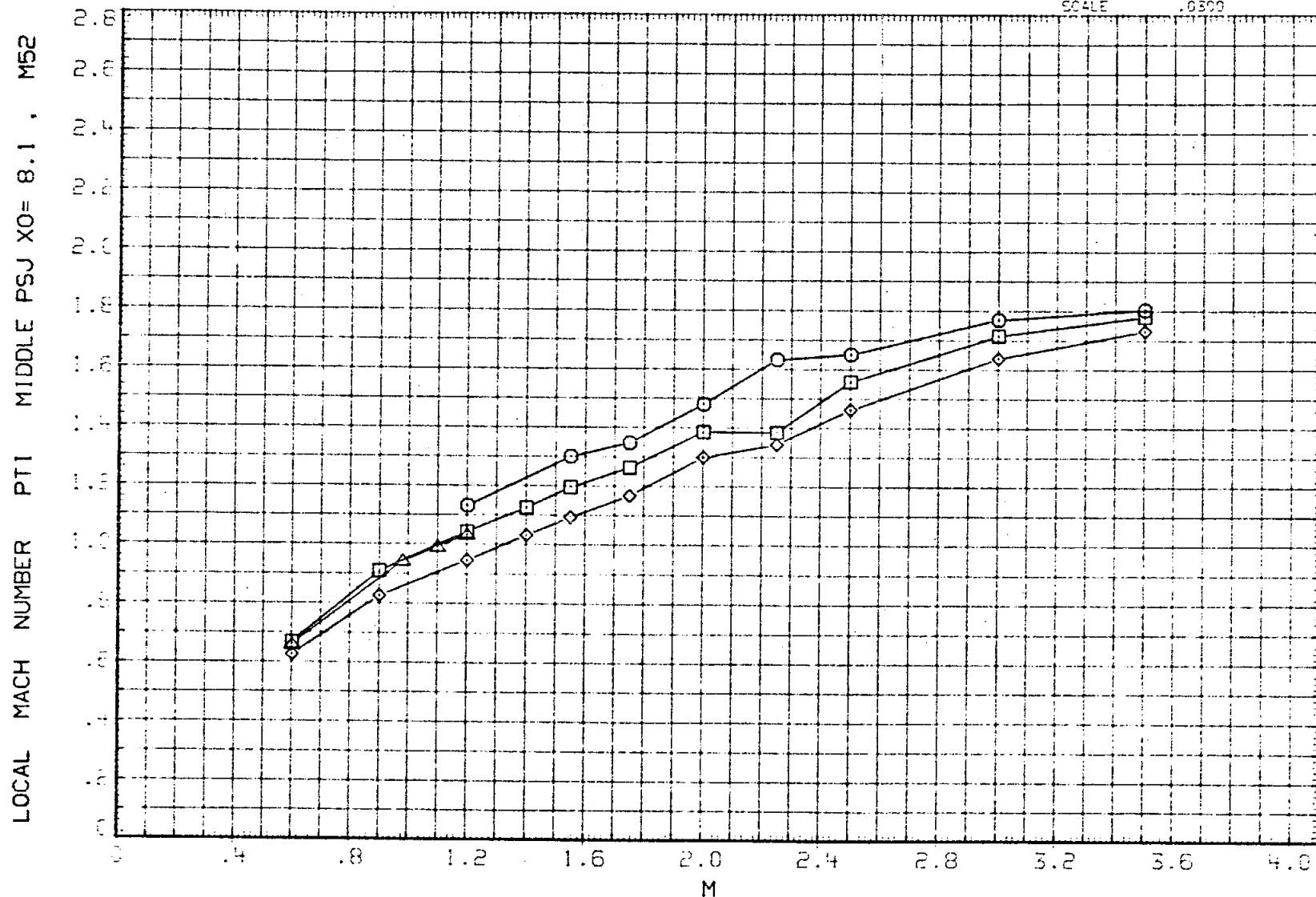


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

(E) ALPHA = 24.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BURLEN	REFERENCE INFORMATION		
FL7X03	○	ARC 11-97-87-094 OA161 ORBITER * RAKES	-5.000	.000	.000	-7.170	EMT	2600.0000	50.41
FL7X05	□	ARC 11-97-87-094 OA161 ORBITER * RAKES	-.000	.000	.000	-7.170	LRP	474.6000	10
FL7X07	△	ARC 11-97-87-094 OA161 ORBITER * RAKES	5.000	.000	.000	-7.170	DRP	336.6000	10
FL7A01	◇	ARC 11-97-87-094 OA161 ORBITER * WING * RAKES	.000	.000	.000	-7.170	XMRP	1016.6800	100 X0
							YMRP	.0000	100 Y0
							ZMRP	375.0000	100 Z0
							SCALE	.0000	

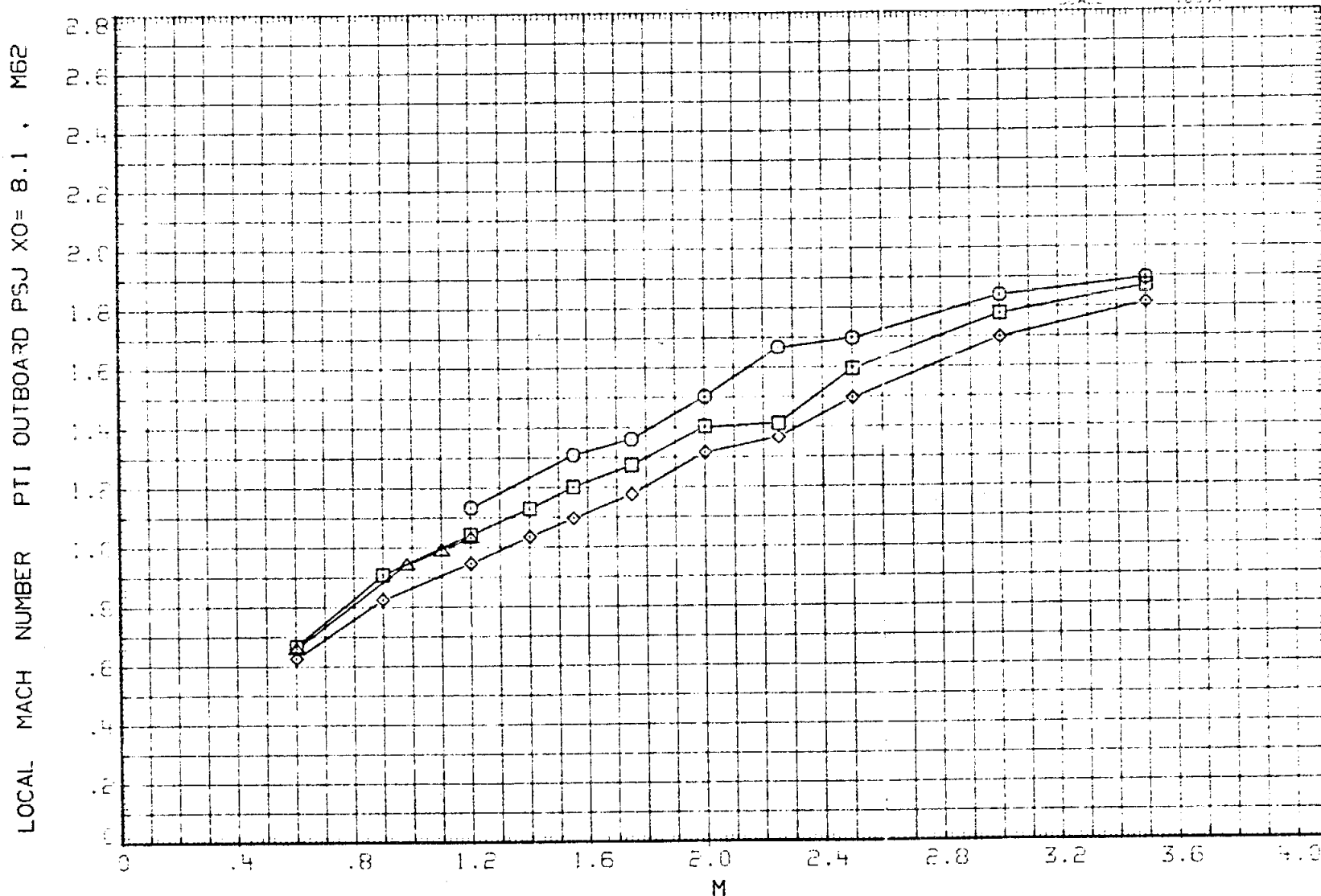


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

(E) ALPHA = 24.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
FE7X03	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
FE7X05	□	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
FE7X07	◇	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
FE7X01	△	ARC 11-97-87-094 0A161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	YMRP	1075.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0000	

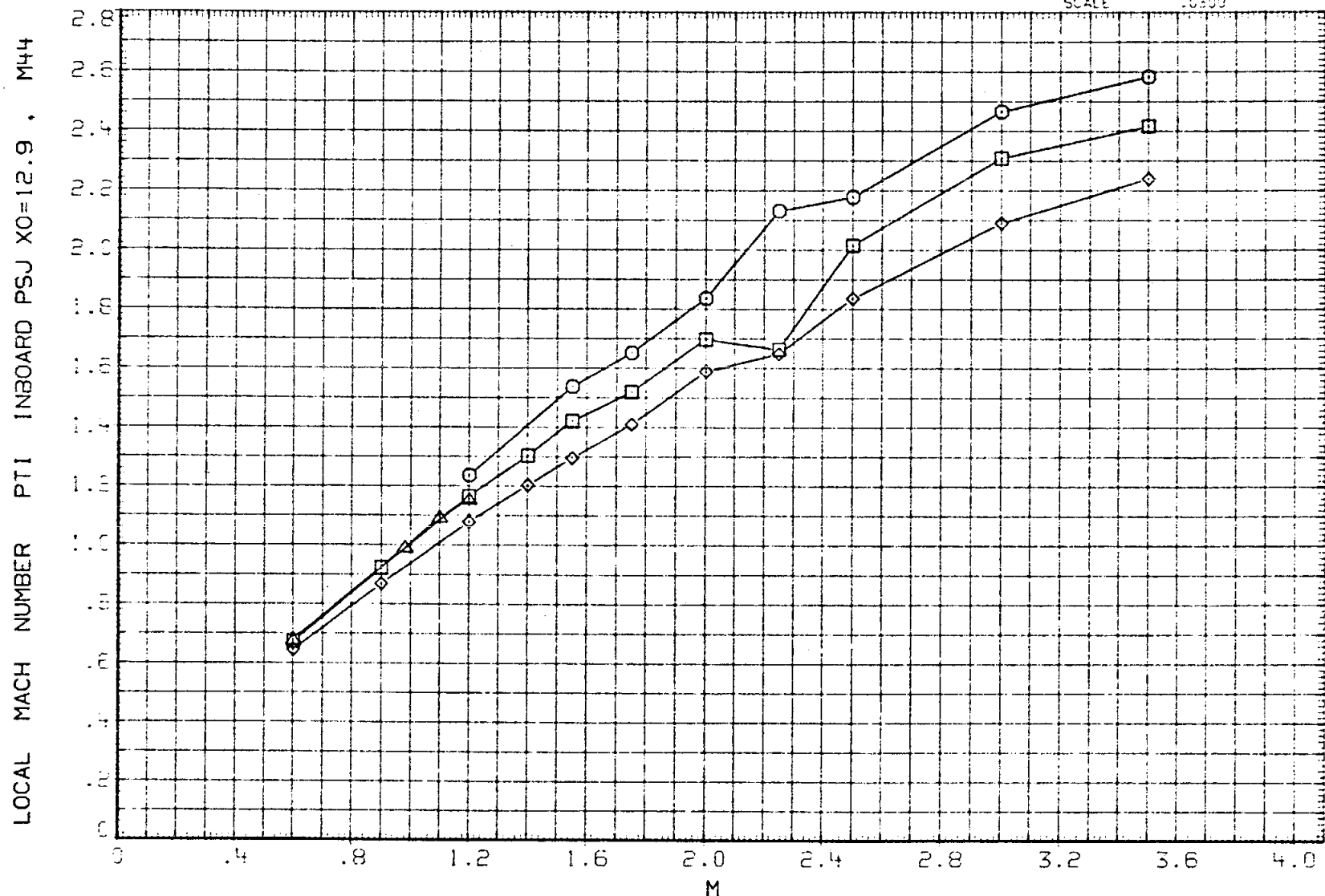


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

(E) ALPHA = 24.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILERON	SDFLAP	REFERENCE INFORMATION		
FETX03	○	ARC 11-97-87-09- CA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	1030.0000	SQ.FT.
FETX05	□	ARC 11-97-87-09- CA161 ORBITER + RAKES	.000	.000	.000	-7.170	REF	429.8000	IN.
FETX07	◇	ARC 11-97-87-09- CA161 ORBITER + RAKES	5.000	.000	.000	-7.170	REF	936.8800	IN.
FETX01	△	ARC 11-97-87-09- CA161 ORBITER + WING + RAKES	.000	.000	.000	-7.170	XMPP	1076.5800	IN. XO
							YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0000	

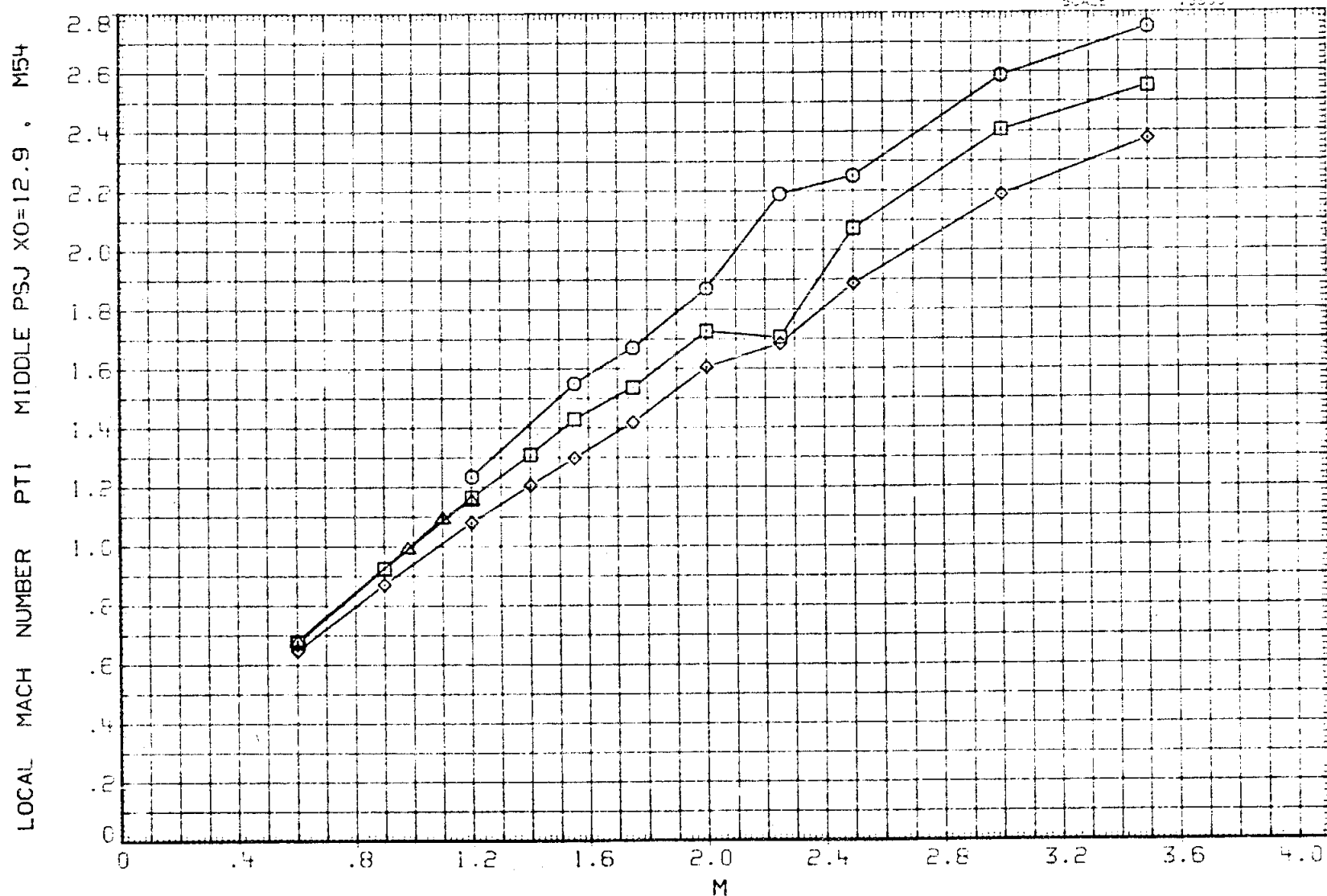


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

(E) ALPHA = 24.00



DATA SET SYMBOL		CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
FE7X03	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
FE7X05	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
FE7X07	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	935.6000	IN.
FE7X01	△	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000			-7.170	XMRP	1075.6800	IN. X0
							YMRP	.0000	IN. Y0
							ZMRP	75.0000	IN. Z0
							SCALE	.0000	

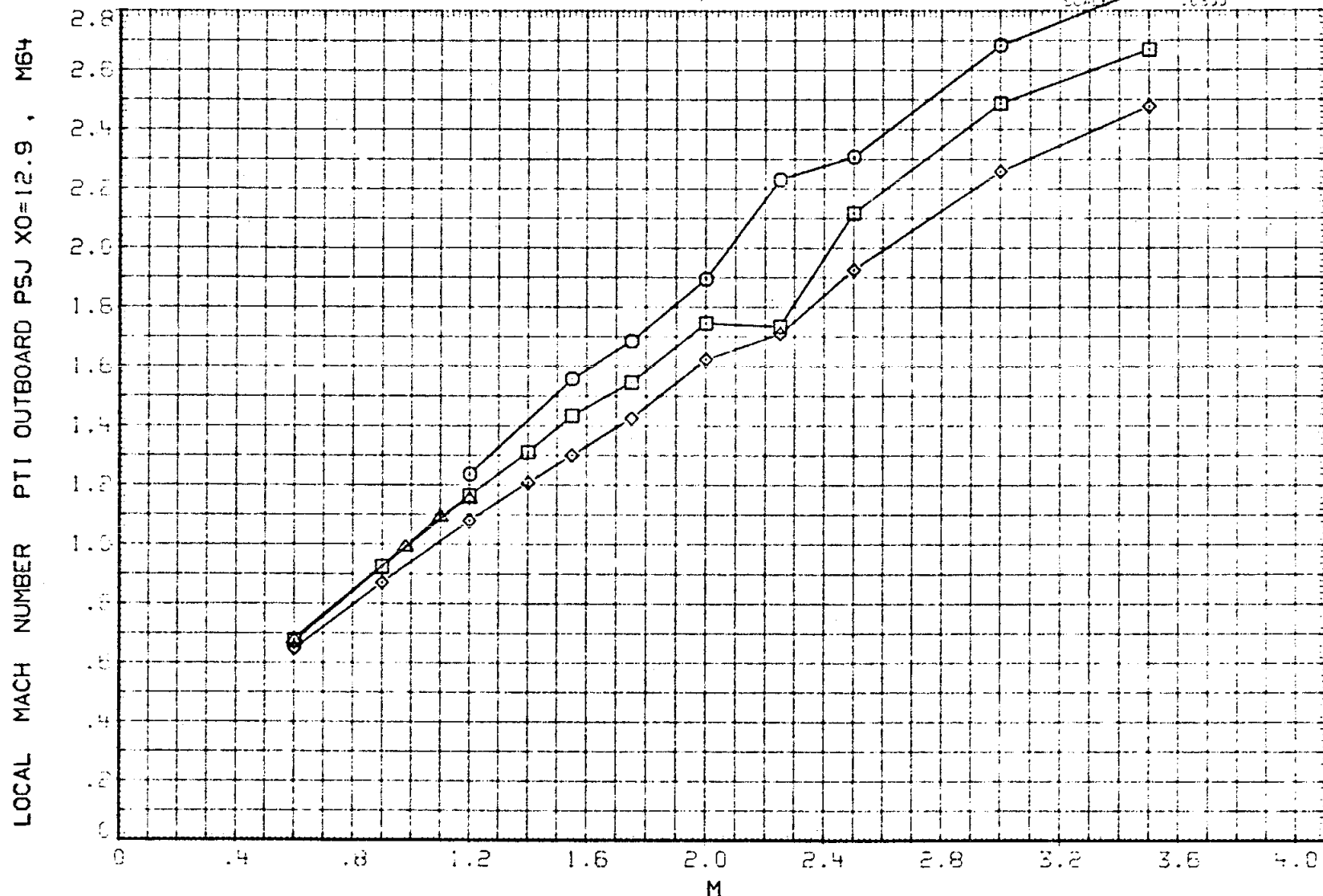


FIG. 22 EFFECT OF BETA ON CALCULATED LOCAL MACH NUMBER RIGHT RAKE

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILERON	BDRL UP	REFERENCE INFORMATION	
FETB03	○	ARC 11-97-87-094 Q4161 ORBITER * RAKES	-5.000	.000	.000	-7.175	SRF	2690.0000 IN. Y0
FETB04	□	ARC 11-97-87-094 Q4161 ORBITER * RAKES	.000	.000	.000	-7.175	SRF	474.0000 IN. Y0
FETB07	◇	ARC 11-97-87-094 Q4161 ORBITER * RAKES	5.000	.000	.000	-7.175	SRF	936.0000 IN. Y0
FETB01	△	ARC 11-97-87-094 Q4161 ORBITER * WING * RAKES	.000	.000	.000	-7.175	YMRP	1076.0000 IN. Y0
							YMRP	.0000 IN. Y0
							ZMRP	375.0000 IN. Z0
							SCALE	.0700

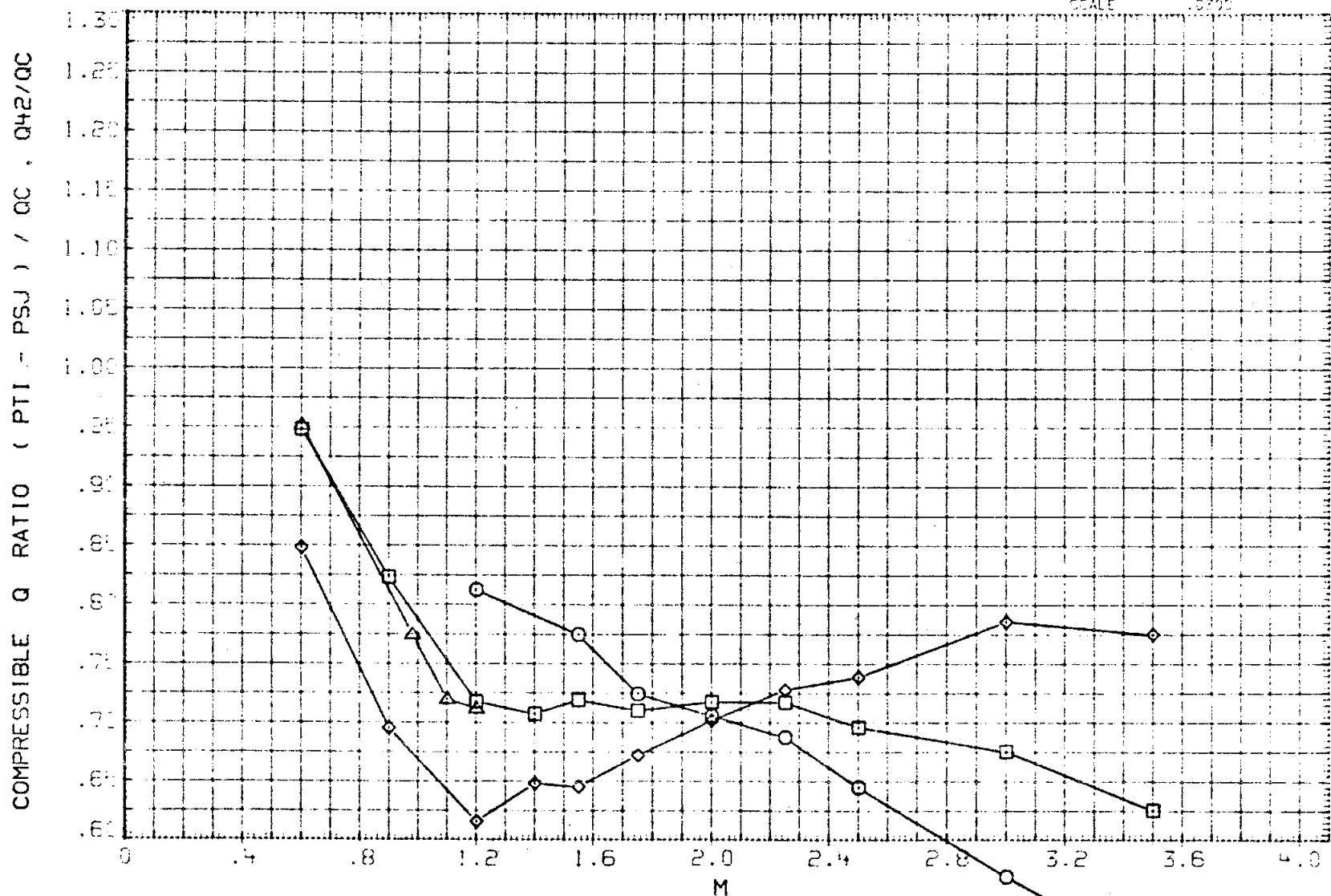


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

(A) ALPHA = .00

DATA SET SYMBOL		CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
FE7803	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50.FT.
FE7805	□	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.6000	IN.
FE7807	◇	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
FE7801	△	ARC 11-97-87-094 0A161 ORBITER - WING + RAKES	.000			-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.6300	

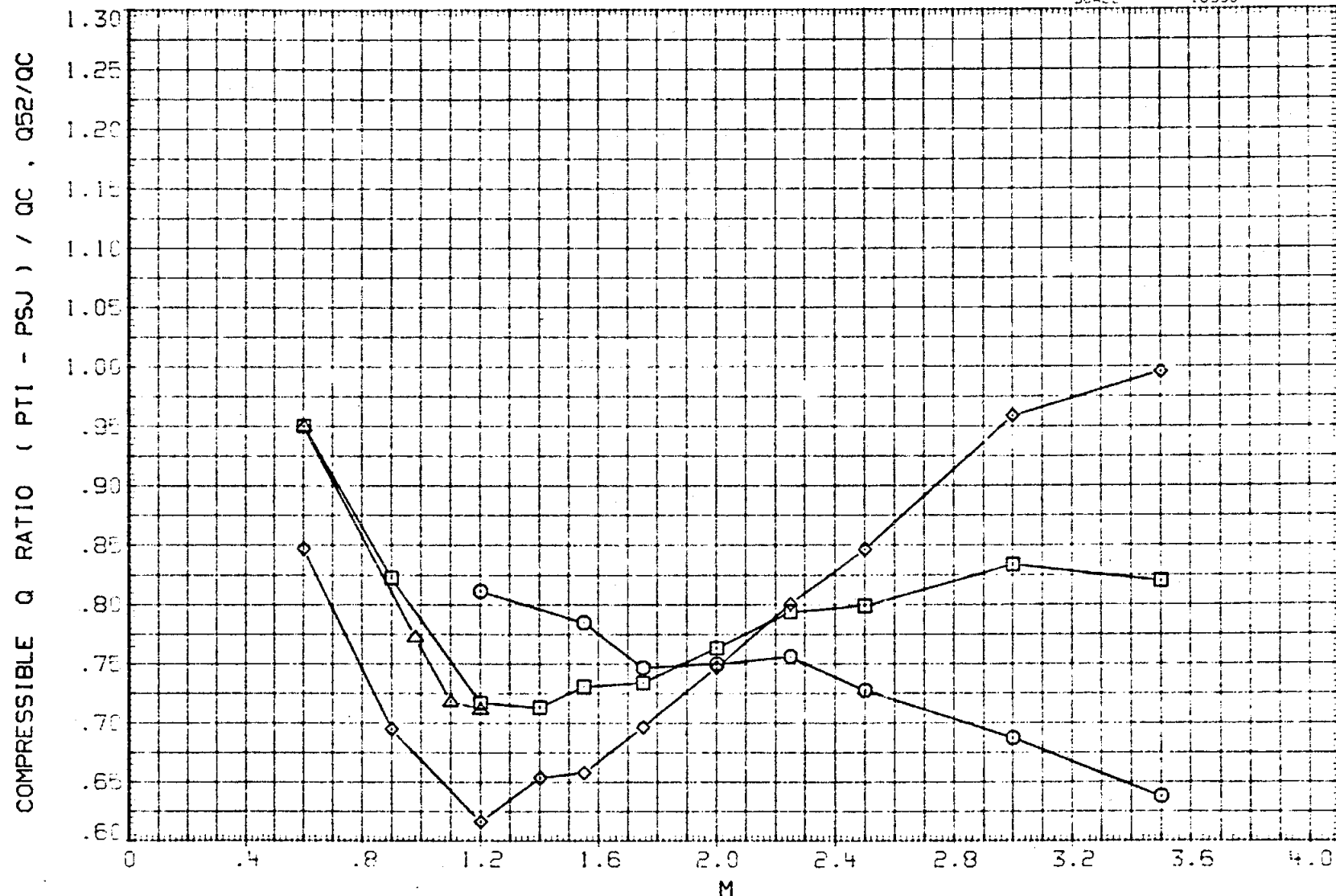


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

(A) ALPHA = .00

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	ATLURON	SOFT	REFERENCE INFORMATION
FETB03	ARC 11-97-87-094 0A161 ORBITER * RAKES	5.000	.000	.000	77.170	SPFF 2690.0000 50 FT
FETB04	ARC 11-97-87-094 0A161 ORBITER * RAKES	.000	.000	.000	77.170	LEFF 479.6000 IN
FETB05	ARC 11-97-87-094 0A161 ORBITER * RAKES	5.000	.000	.000	77.170	DRFF 936.6000 IN
FETB01	ARC 11-97-87-094 0A161 ORBITER * WING * RAKES	.000	.000	.000	77.170	YMRP 1076.6000 IN. X0
						YMRP .0000 IN. Y0
						YMRP 375.0000 IN. Z0
						SCALE .0010

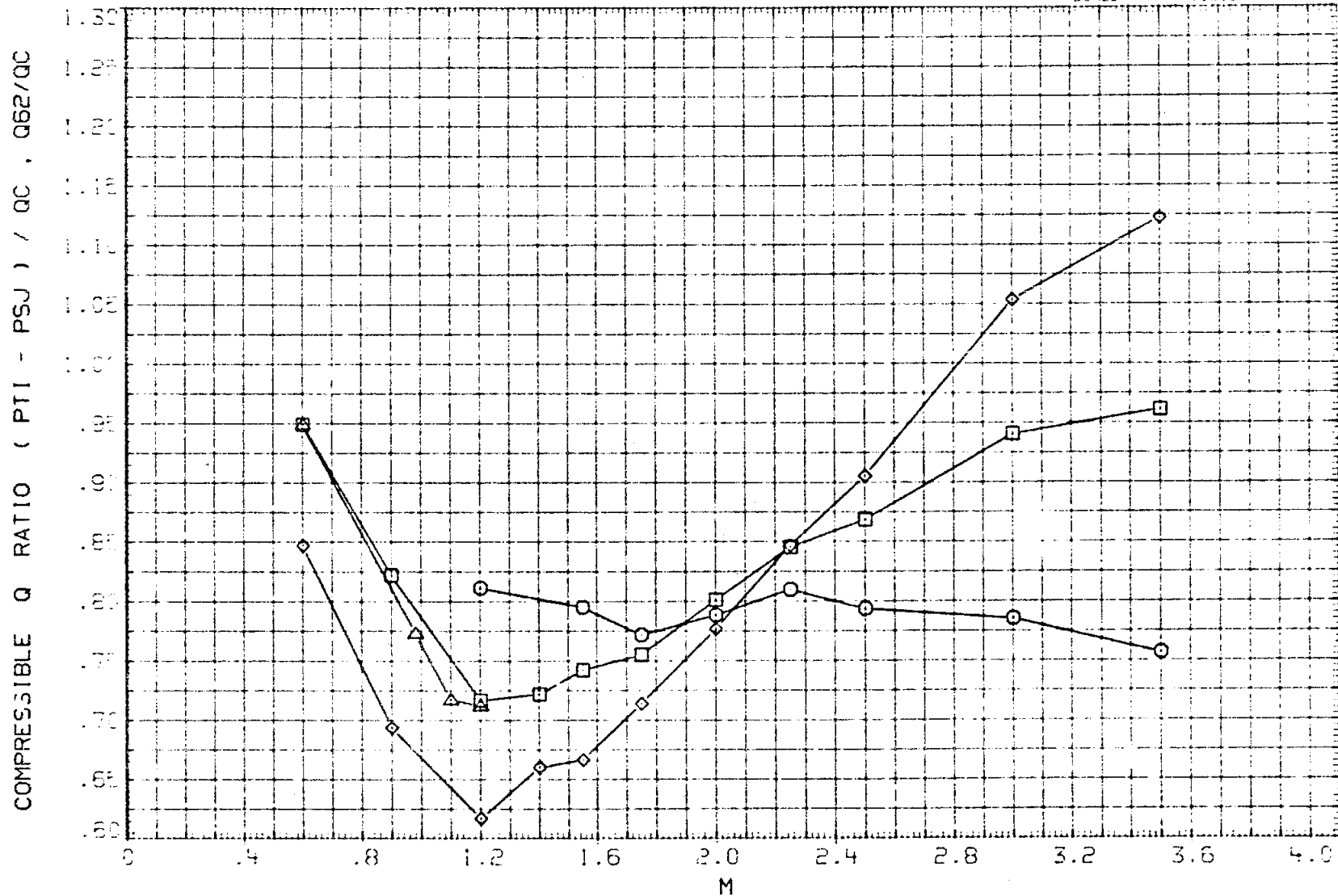


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

(A) ALPHA = .00

DATA SET SYMBOL

FE7803	○	ARC 11-97-87-094	0A161 ORBITER + RAKES
FE7805	□	ARC 11-97-87-094	0A161 ORBITER + RAKES
FE7807	◇	ARC 11-97-87-094	0A161 ORBITER + RAKES
FE7801	△	ARC 11-97-87-094	0A161 ORBITER - WING + RAKES

CONFIGURATION

BETA	ELEVON	AILRON	BOFLAP
-5.000	.000	.000	-7.170
.000	.000	.000	-7.170
5.000	.000	.000	-7.170
.000			-7.170

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	936.6000	IN.
XMRP	1076.6000	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.6320	

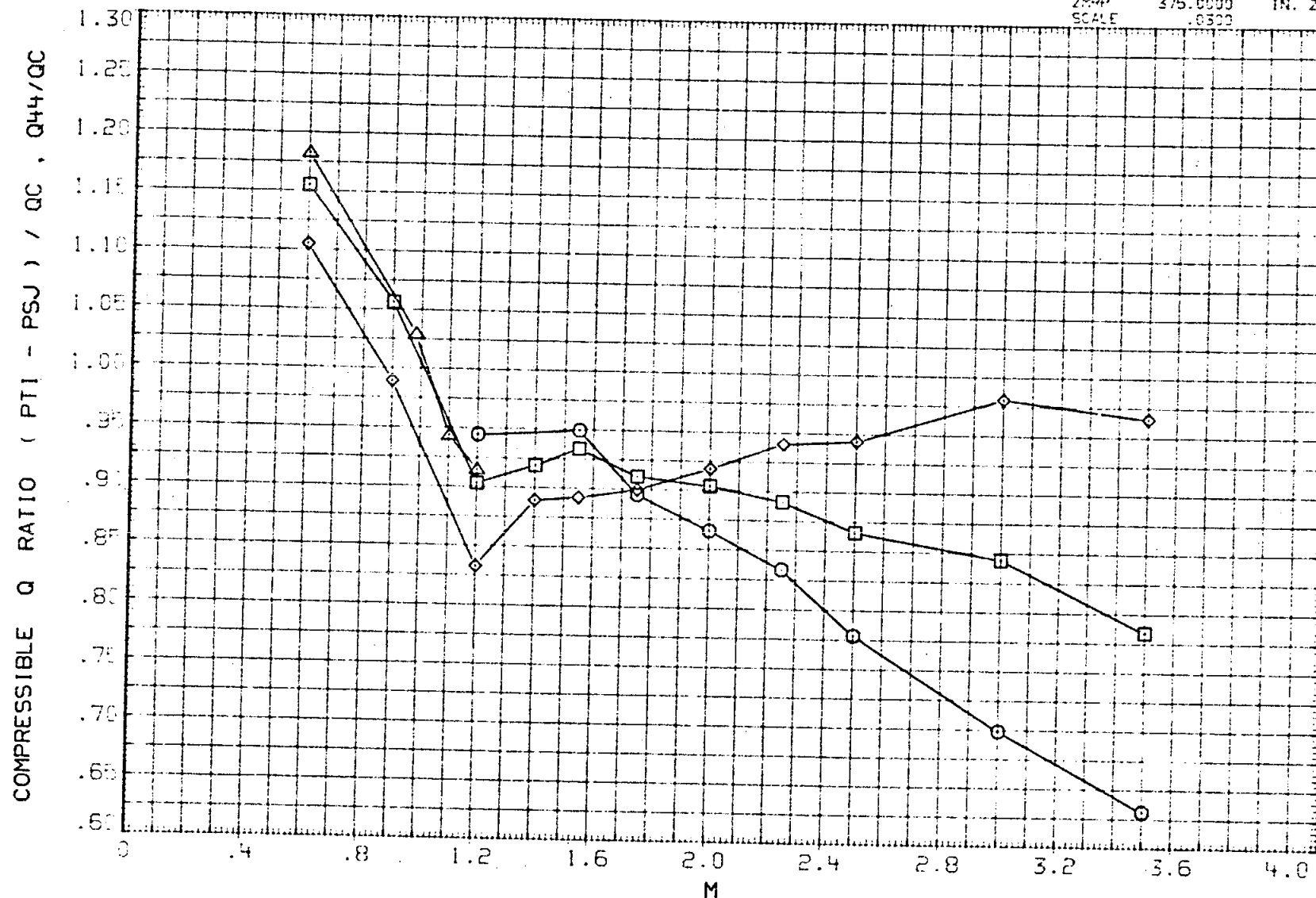


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

(A) ALPHA = .00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFI AF	REFERENCE INFORMATION	
FE18013	○	ARC 11-97-87-094 CA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000 SO.FT.
FE18015	□	ARC 11-97-87-094 CA161 ORBITER + RAKES	.000	.000	.000	-7.170	LRIT	474.8000 IN.
FE18017	◇	ARC 11-97-87-094 CA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BLV	935.6400 IN.
FE18011	△	ARC 11-97-87-094 CA161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	XWSP	1005.6600 IN. XO
							YWSP	.0000 IN. YO
							ZWSP	500.0000 IN. ZO
							SCALE	10000

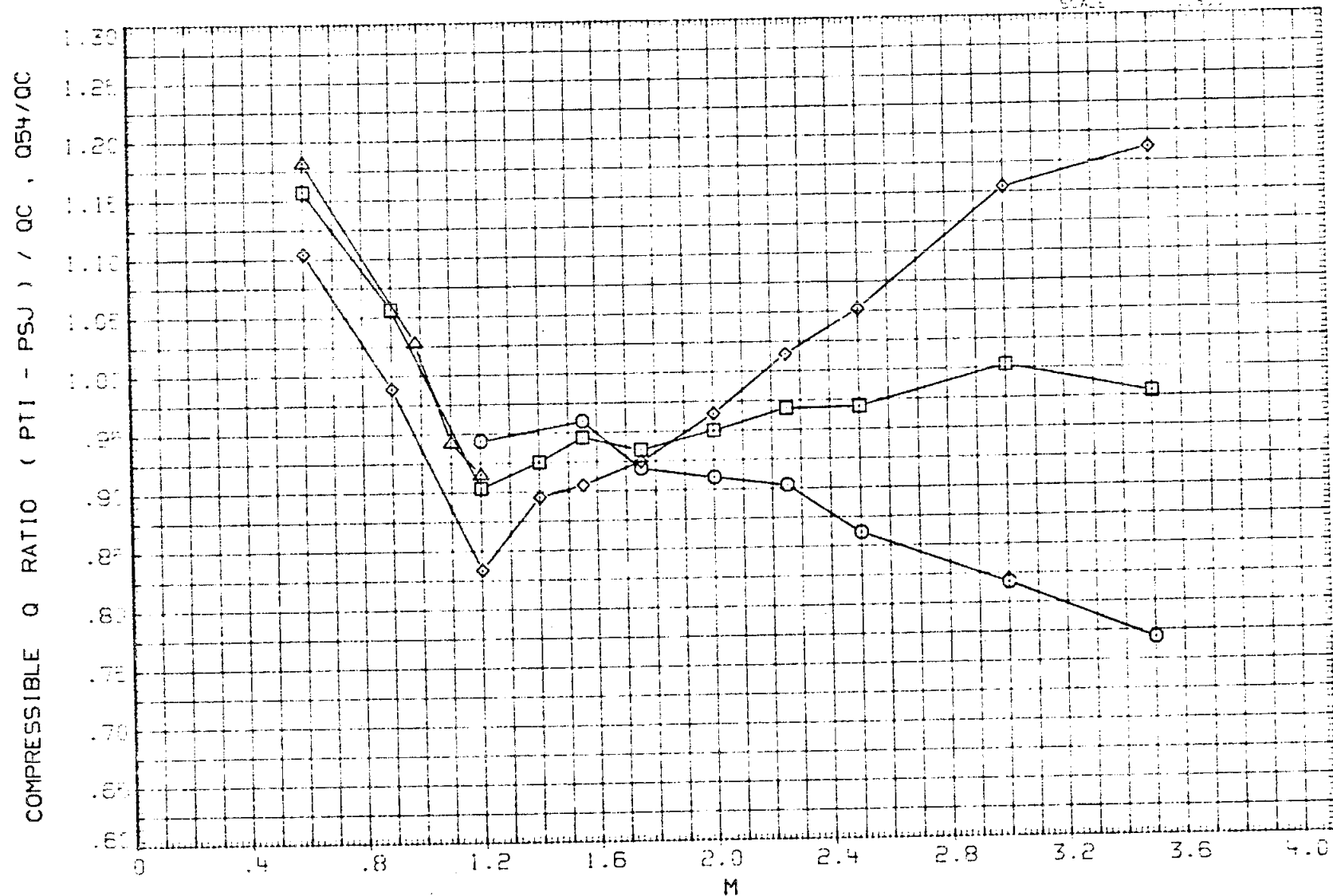


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

(ALPHA = .00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
FE7803	Q	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2693.0000	50. FT.
FE7805	Q	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
FE7807	Q	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6900	IN.
FE7801	△	ARC 11-97-87-094 0A161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	XMRP	1076.6900	IN. X0
							YMRP	.0000	IN. Y0
							ZMRP	375.0000	IN. Z0
							SCALE	.0000	

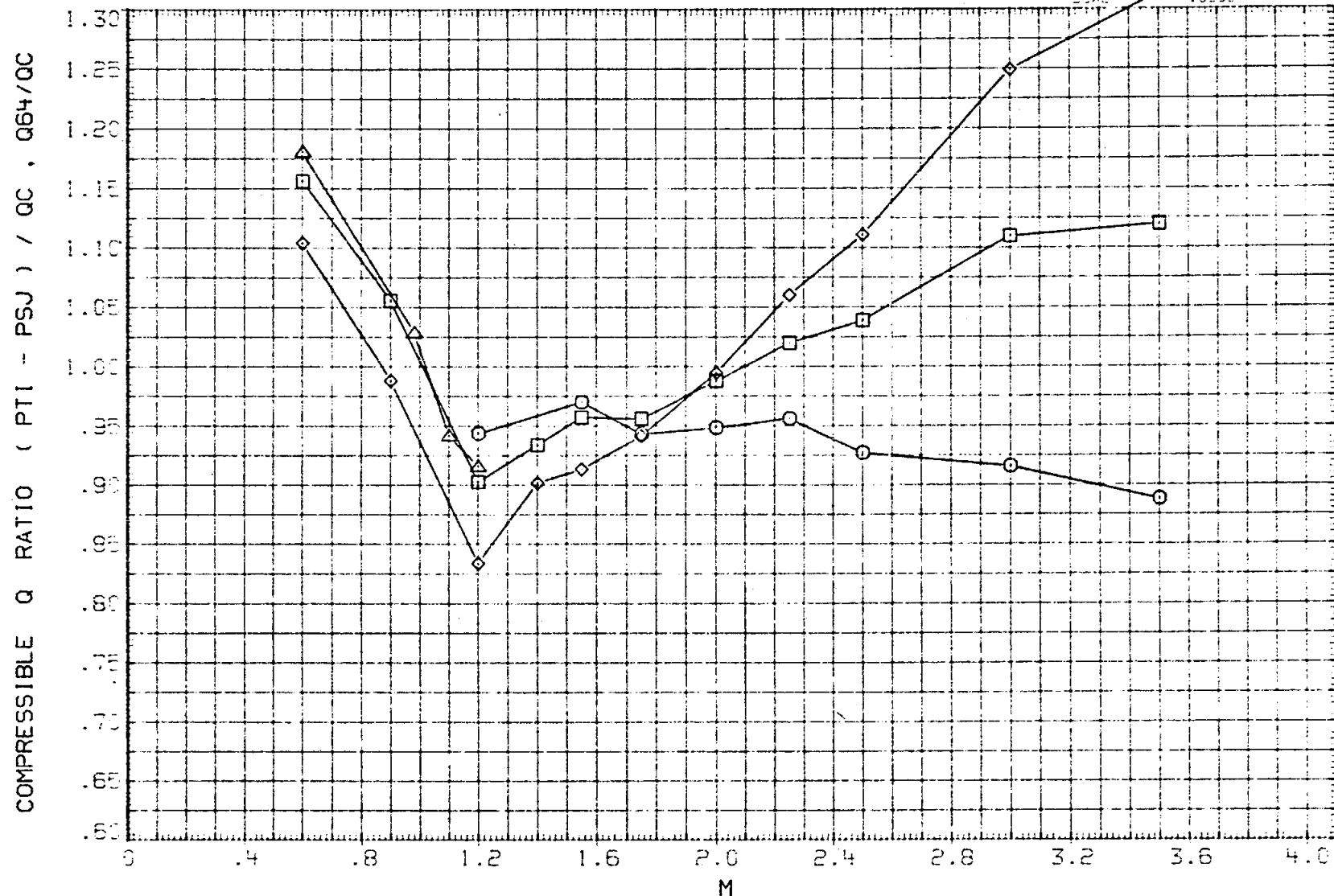


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO QI/QC RIGHT RAKE

(A) ALPHA = .00

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AIRRON

BDF LAP

REFERENCE INFORMATION

FE1803 O ARC 11-97-87-094 04161 ORBITER \* RAKES  
 FE1806 O ARC 11-97-87-094 04161 ORBITER \* RAKES  
 FE1807 O ARC 11-97-87-094 04161 ORBITER \* RAKES  
 FE1801 ZL DATA NOT AVAILABLE

-5.000

.000

.000

-7. 70

SREF 2680.0000 SQ.FT.

LREF 10.8000 IN.

BREF 335.8800 IN.

XMRP 1076.6800 IN. X0

YMRP .0000 IN. Y0

ZMRP 375.0000 IN. Z0

SCALE .0300

COMPRESSIBLE Q RATIO ( PTI - PSJ ) / QC , Q42/QC

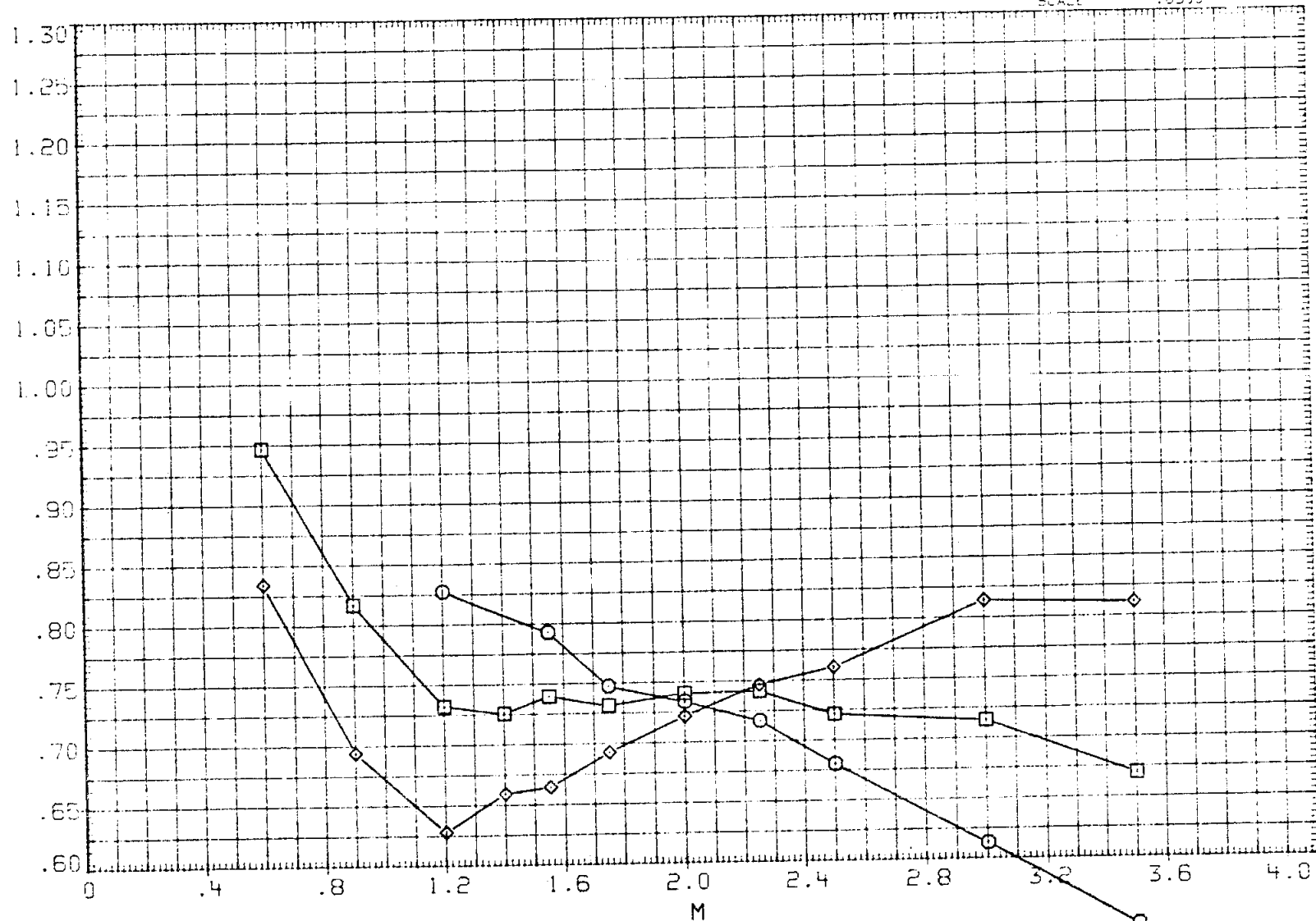


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

(B) ALPHA = 6.00

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DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BDFLAP

REFERENCE INFORMATION

FE1833 ○ ARC 11-97-87-094 0A161 ORBITER + RAKES  
 FE1835 □ ARC 11-97-87-094 0A161 ORBITER + RAKES  
 FE1837 ◇ ARC 11-97-87-094 0A161 ORBITER + RAKES  
 FE1831 △ DATA NOT AVAILABLE

-5.000  
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.000  
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-7.170  
 -7.170  
 -7.170  
 -7.170

SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0500

DATA

COMPRESSIBLE Q RATIO ( PTI - PSJ ) / QC , Q52/QC

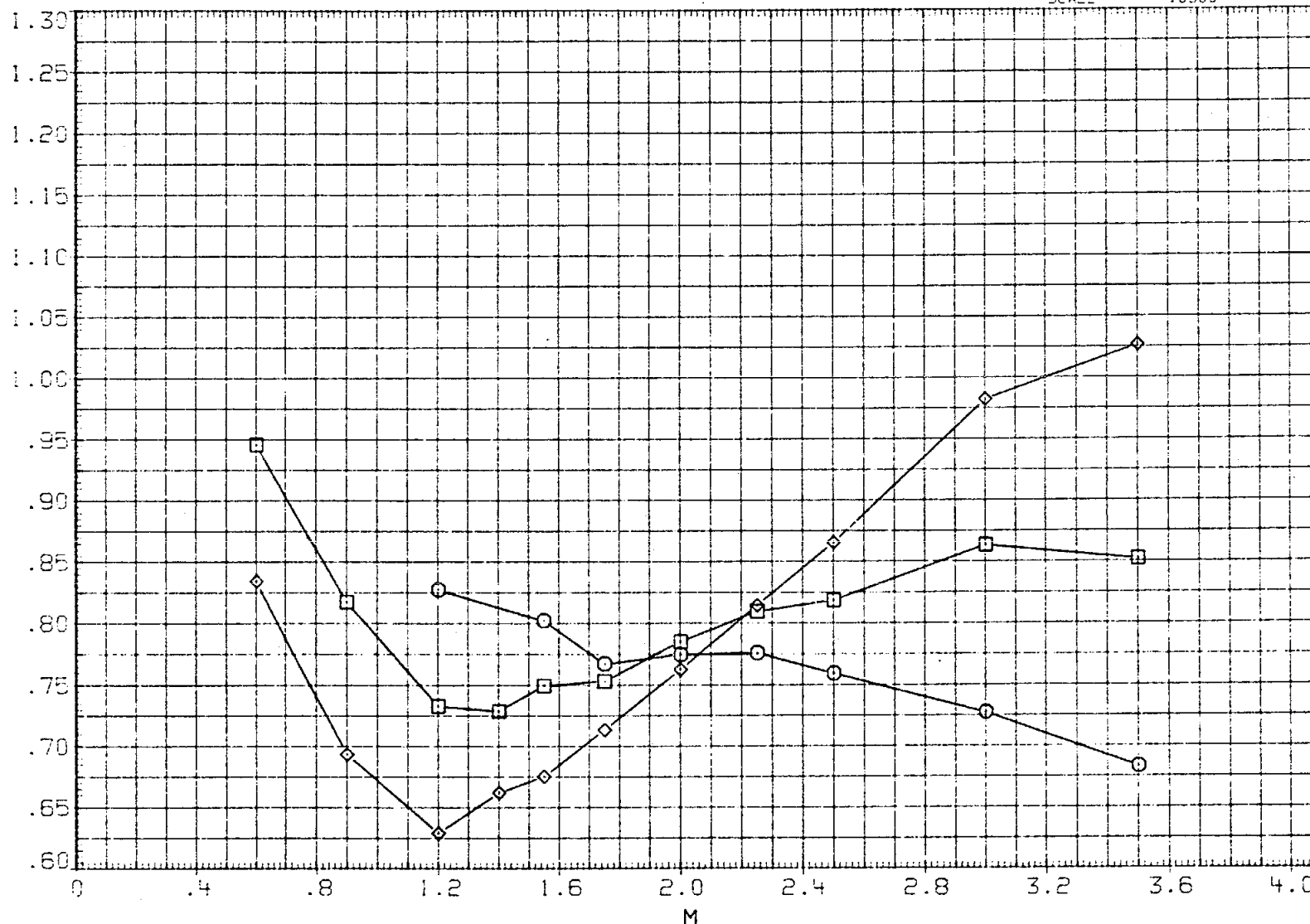


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

(B) ALPHA = 6.00

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DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AIRLON	BDCLAP	REFERENCE INFORMATION			DATA
FE2003	○	ARC 11-97-67-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2600.0000	50.FT.	01
FE2005	□	ARC 11-97-67-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.	02
FE2007	◇	ARC 11-97-67-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	926.6800	IN.	03
FE2001	△	DATA NOT AVAILABLE	.000				XMAP	1076.6800	IN. XC	04
							YMAP	.0000	IN. YO	
							ZMAP	375.0000	IN. ZO	
							SCALE	.0300		

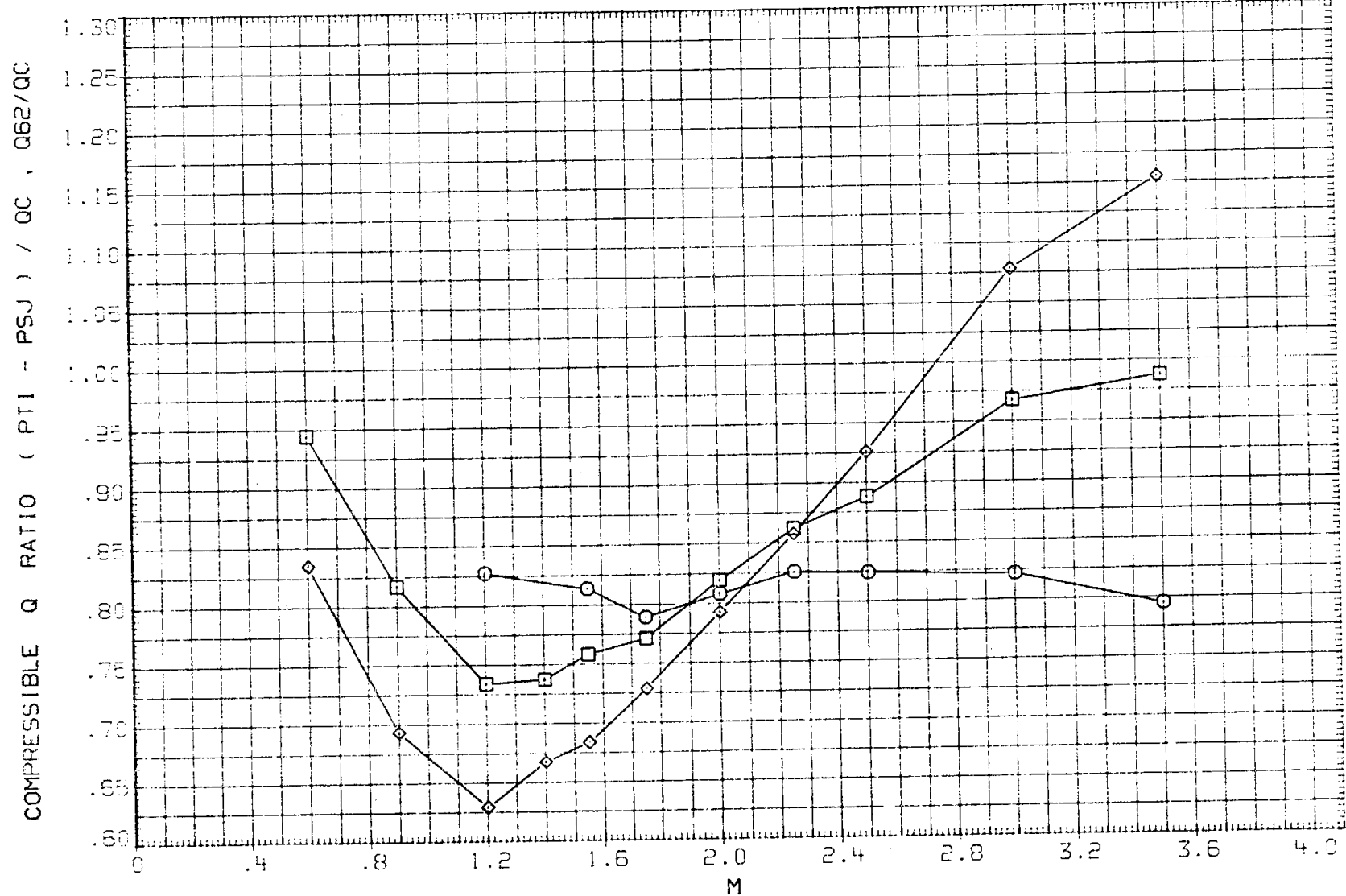


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1/QC RIGHT RAKE

(B) ALPHA = 6.00

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BDFLAP

REFERENCE INFORMATION

DATA

FE7R03    ○    ARC 11-97-87-094 OA161 ORBITER + RAKES  
 FE7R05    □    ARC 11-97-87-094 OA161 ORBITER + RAKES  
 FE7R07    ◇    ARC 11-97-87-094 OA161 ORBITER + RAKES  
 FE7R01    △    DATA NOT AVAILABLE

-5.000  
 .000  
 5.000  
 .000

.000  
 .000  
 .000  
 .000

.000  
 .000  
 .000  
 .000

-7.170  
 -7.170  
 -7.170  
 -7.170

SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 SREF 935.6800 IN.  
 YMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

FE  
 FE  
 FE  
 FE

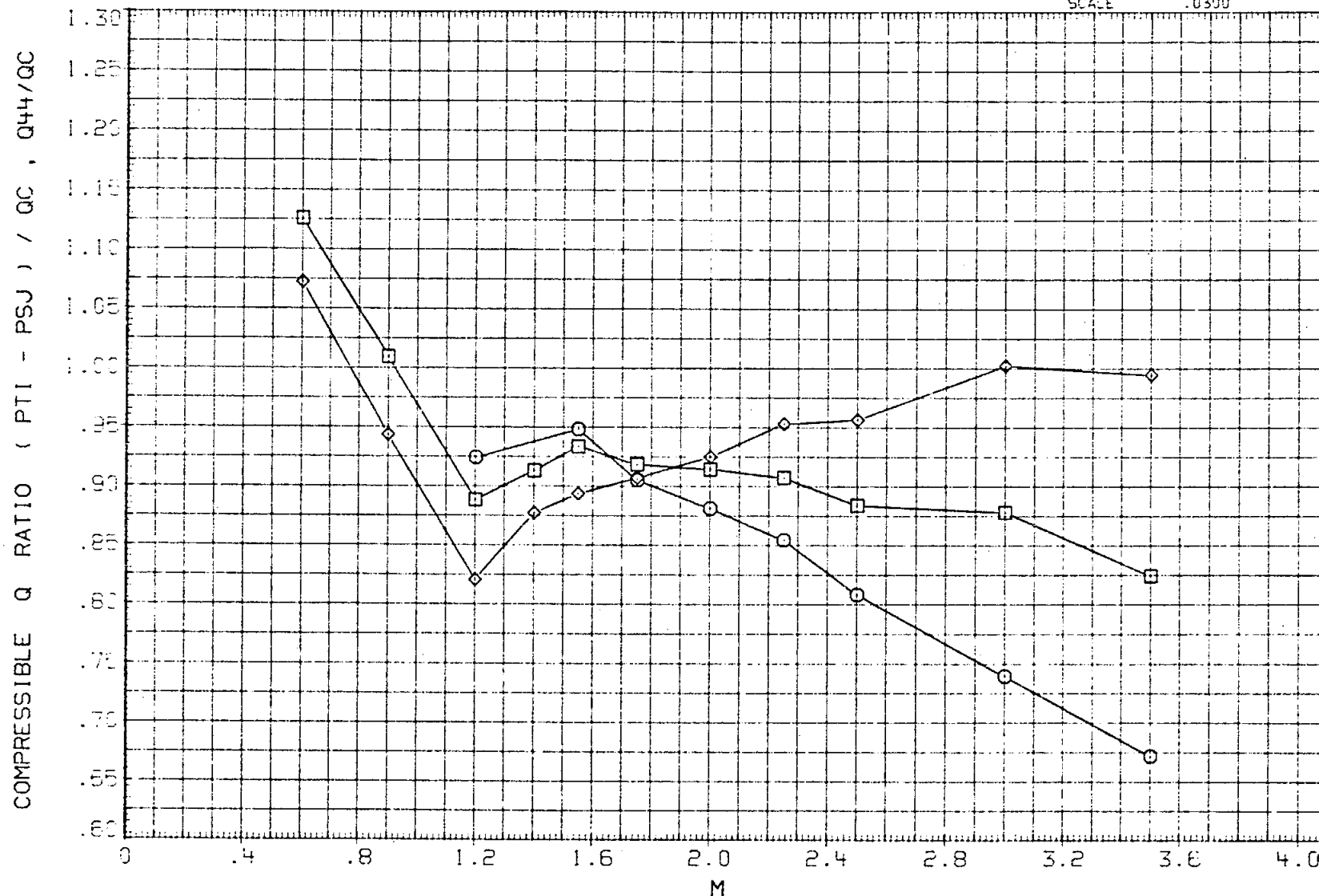


FIG. 23 EFFECT OF BETA

ON COMPRESSIBLE Q RATIO

QI/J/QC RIGHT RAKE

(B) ALPHA = 6.00

WTA SET SYMBOL

CONTINUATION

BETA

ELEVON

ALTERN

BOLAP

REFERENCE INFORMATION

FE7803 ○ ARC 11-97-87-094 OA161 ORBITER + RAKES  
 FE7805 □ ARC 11-97-87-094 OA161 ORBITER + RAKES  
 FE7807 ◇ ARC 11-97-87-094 OA161 ORBITER + RAKES  
 FE7801 △ DATA NOT AVAILABLE

-5.000  
 .000  
 5.000  
 .000

.000  
 .000  
 .000  
 .000

.000  
 .000  
 .000  
 .000

-7.170  
 -7.170  
 -7.170  
 -7.170

SREF 2690.0000 SQ.FT.  
 LREF 1074.8000 IN.  
 BREF 936.6800 IN.  
 YMRP 1076.6800 IN. YO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0360

FE  
 FE  
 FE  
 FE

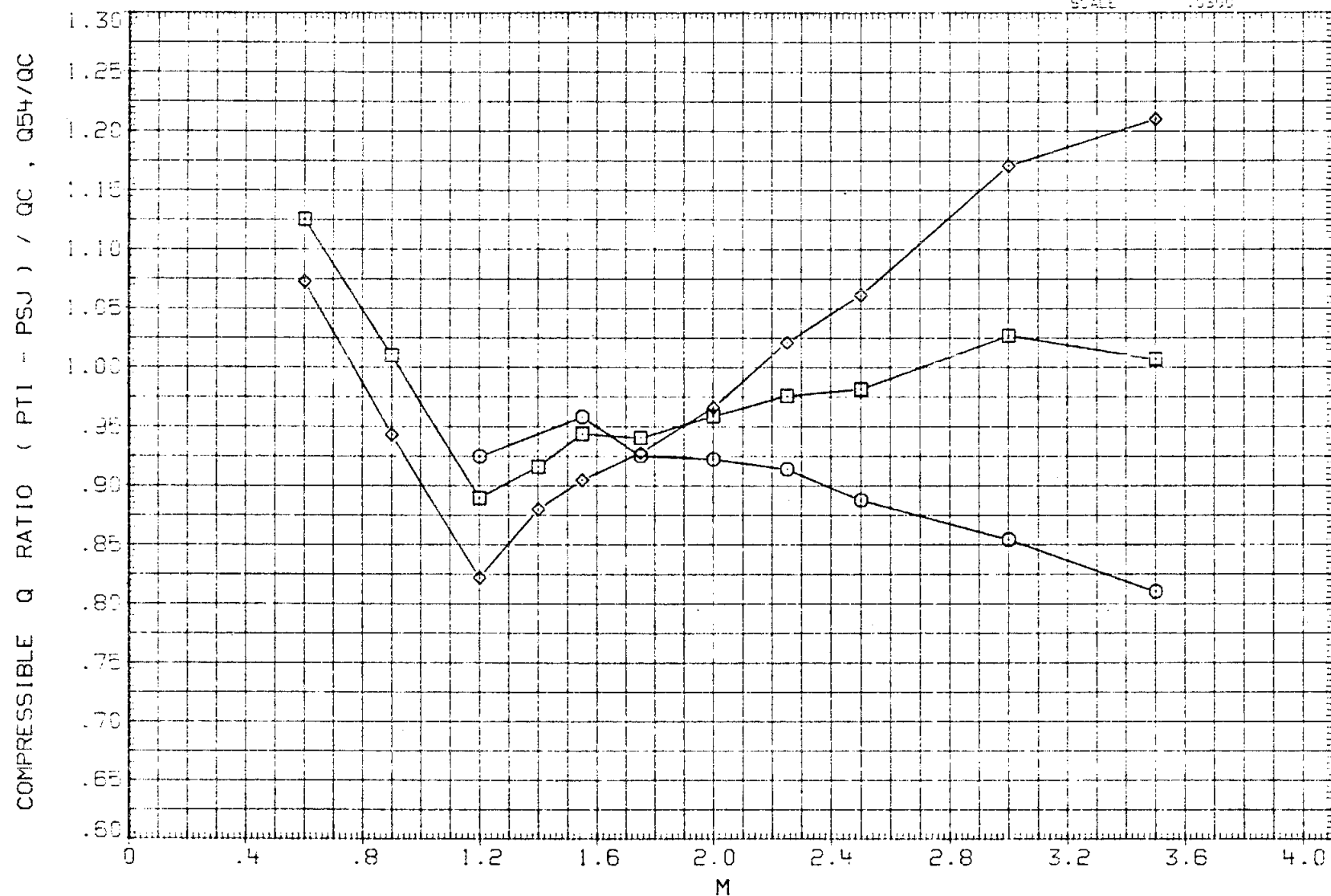


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

(B) ALPHA = 6.00

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## DATA SET SYMBOL

## CONFIGURATION

BETA

ELEVON

AILRON

BDFLAP

## REFERENCE INFORMATION

FET303    ARC 11-97-87-094 0A161 ORBITER + RAKES  
 FET304    ARC 11-97-87-094 0A161 ORBITER + RAKES  
 FET305    ARC 11-97-87-094 0A161 ORBITER + RAKES  
 FET306    DATA NOT AVAILABLE

-5.000  
 .000  
 5.000  
 .000

.000  
 .000  
 .000

.000  
 .000  
 .000

-7.170  
 -7.170  
 -7.170  
 -7.170

SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 935.6800 IN.  
 XREF 1076.6800 IN. XO  
 YREF .0000 IN. YO  
 ZREF 375.0000 IN. ZO  
 SCALE .0300

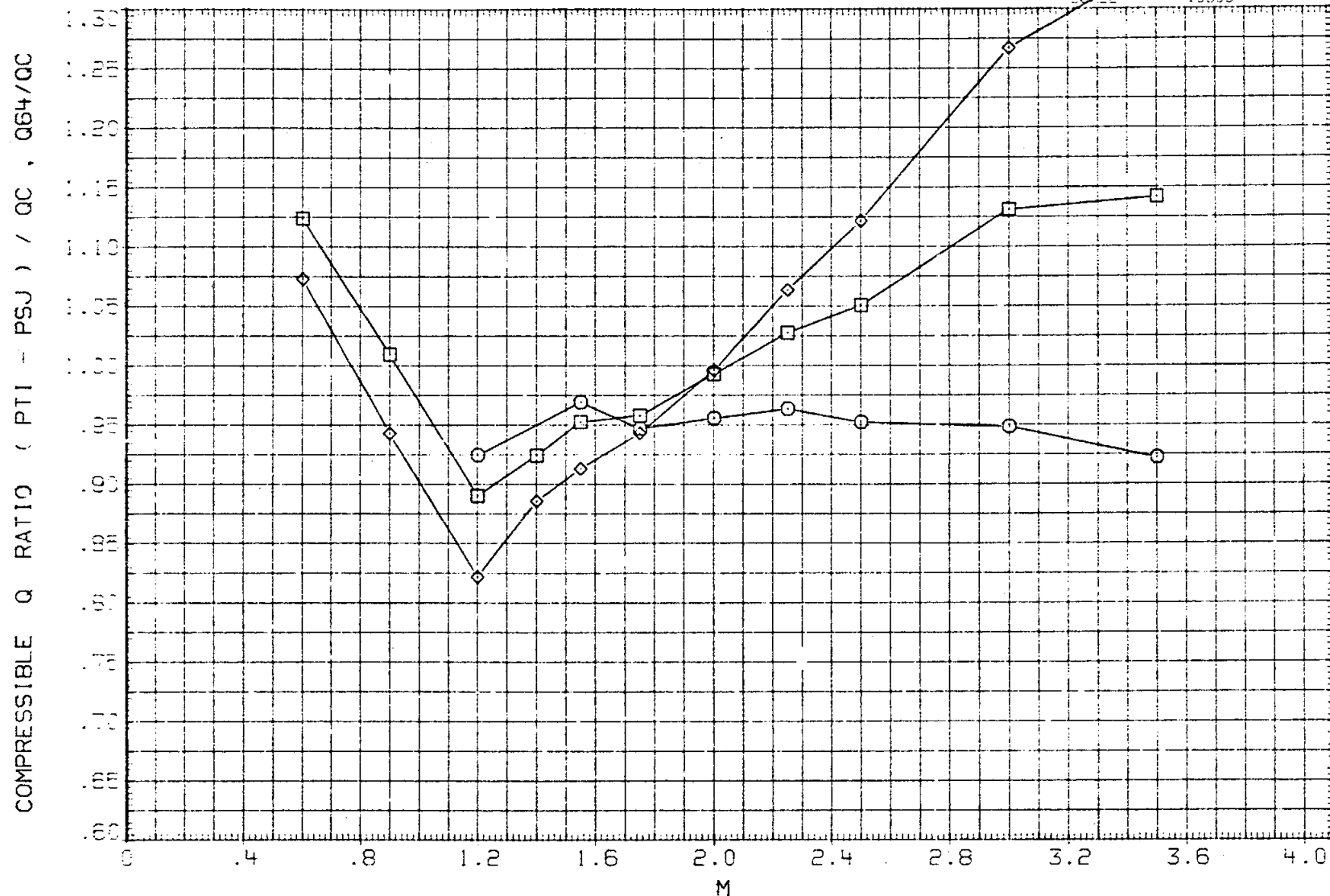


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO QI/QC RIGHT RAKE

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	WTRON	BUFLAP	REFERENCE INFORMATION		
FE7803	○	ARC 11-97-87-09+ CA161 ORBITER + RAKES	-5.000	.000	.000	-9.170	SREF	2690.0000	50. FT.
FE7805	□	ARC 11-97-87-09+ CA161 ORBITER + RAKES	5.000	.000	.000	-9.170	EREF	404.6000	IN.
FE7807	◇	ARC 11-97-87-09+ CA161 ORBITER + RAKES	5.000	.000	.000	-9.170	GRF	936.6800	IN.
FE7801	△	ARC 11-97-87-09+ CA161 ORBITER + WING + RAKES	.000	.000	.000	-9.170	XMRP	1076.6800	IN. X3
							YMRP	.0000	IN. Y3
							ZMRP	375.0000	IN. Z3
							SCALE	.0000	

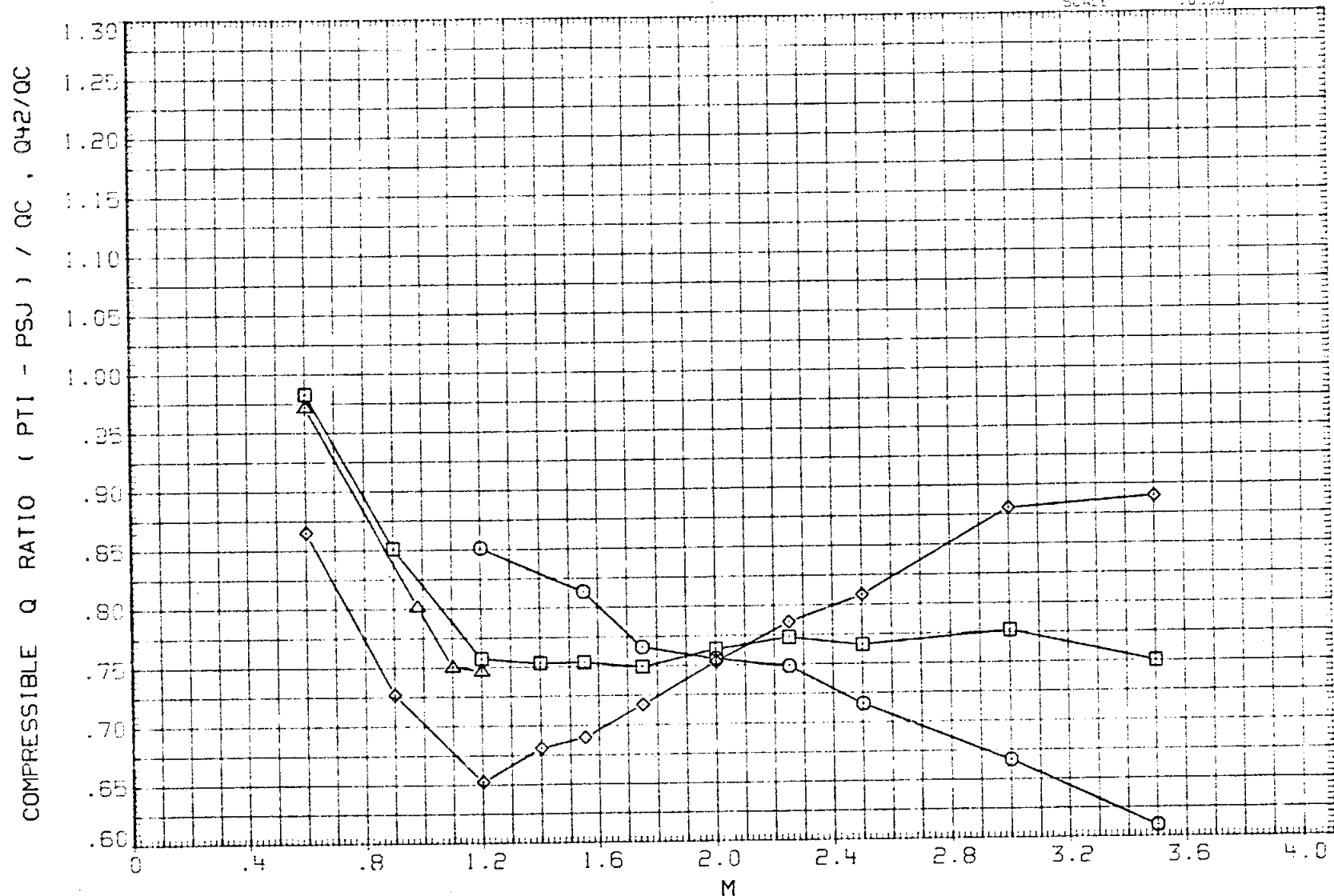


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

(C) ALPHA = 12.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
FE7803	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
FE7806	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
FE7807	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
FE7801	△	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	XMPP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0500	

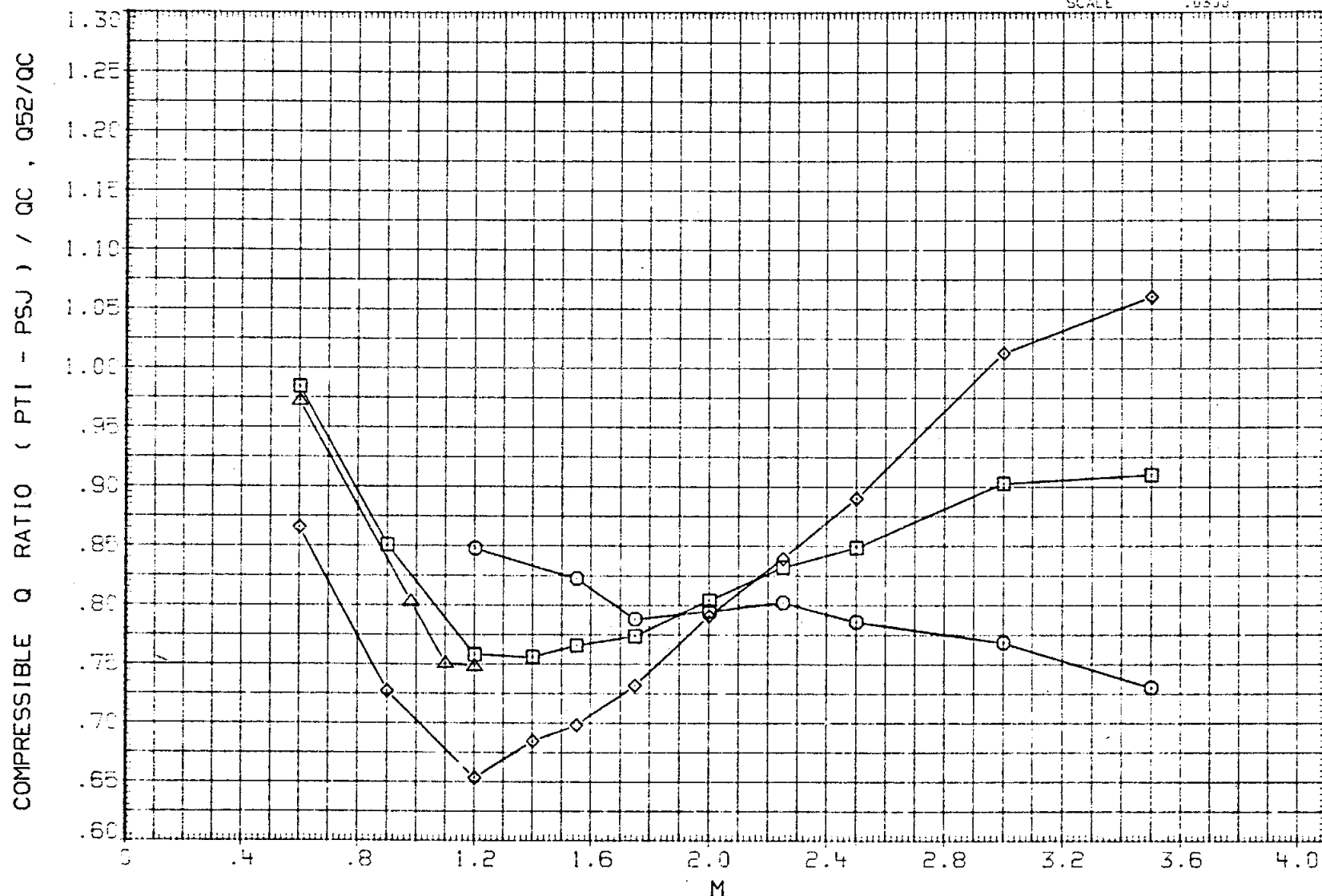


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AYLON	BDCLAP	REFERENCE INFORMATION		
FET803	○	ARC 11-97-87-094 OA161 ORBITER - RAKES	-5.000	.000	.000	-7.170	SREF	2850.0000	90. FT.
FET803	□	ARC 11-97-87-094 OA161 ORBITER - RAKES	.000	.000	.000	-7.170	LRFT	274.6500	IN.
FET803	◇	ARC 11-97-87-094 OA161 ORBITER - RAKES	5.000	.000	.000	-7.170	BRFT	335.6500	IN.
FET803	△	ARC 11-97-87-094 OA161 ORBITER - WING - RAKES	.000	.000	.000	-7.170	YMPP	1076.6200	IN. XC
							YMPP	.0000	IN. YC
							ZMPP	375.0000	IN. ZC
							SCALE	.0300	

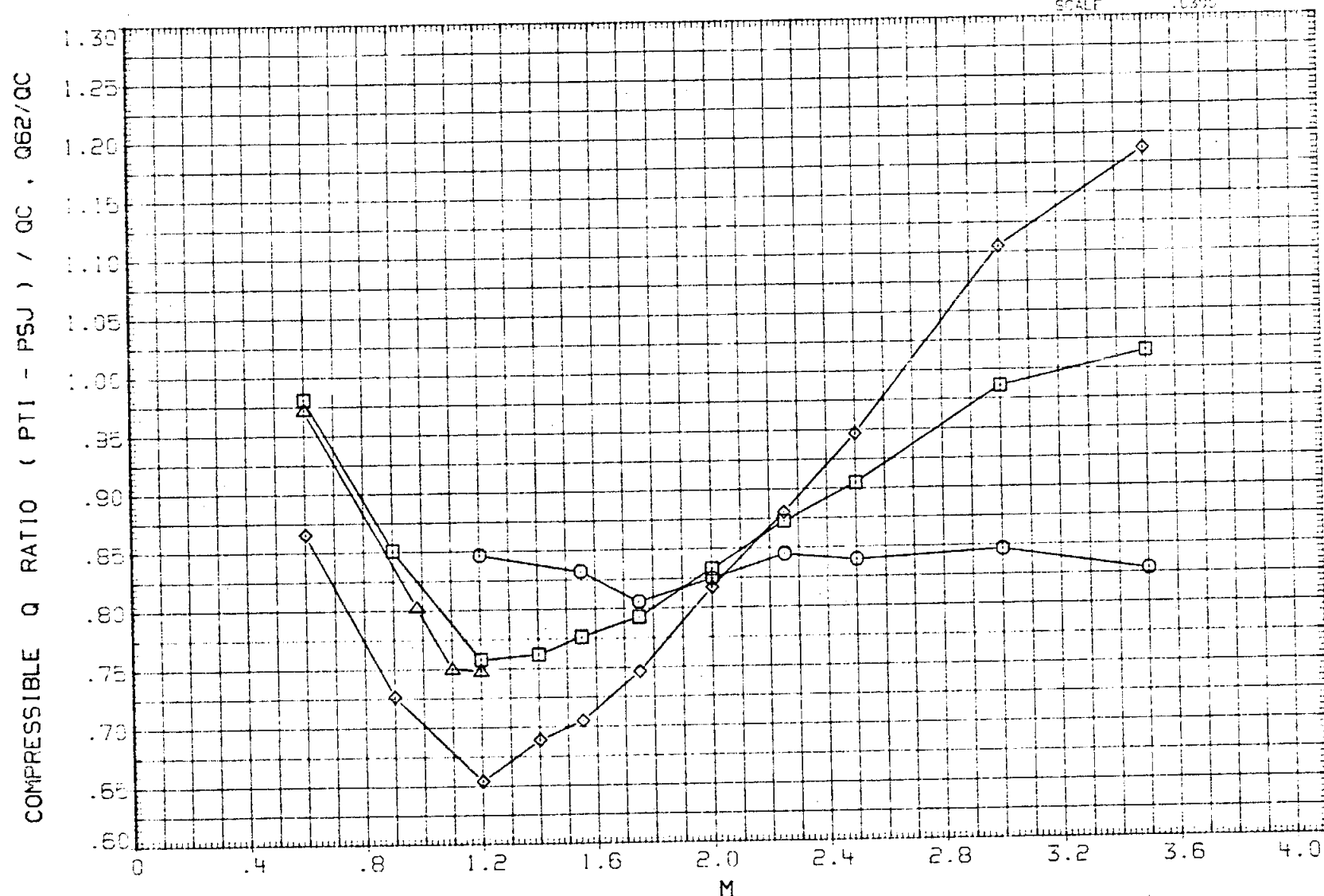


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO QI/QC RIGHT RAKE

(C) ALPHA = 12.00



DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
FE7803	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50.FT.
FE7805	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
FE7807	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	935.6800	IN.
FE7801	ARC 11-97-87-094 0A161 ORBITER - WING + RAKES	.000			-7.170	XMRP	1076.6800	IN. XO
						YMRP	.0000	IN. YO
						ZMRP	375.0000	IN. ZO
						SCALE	.0300	

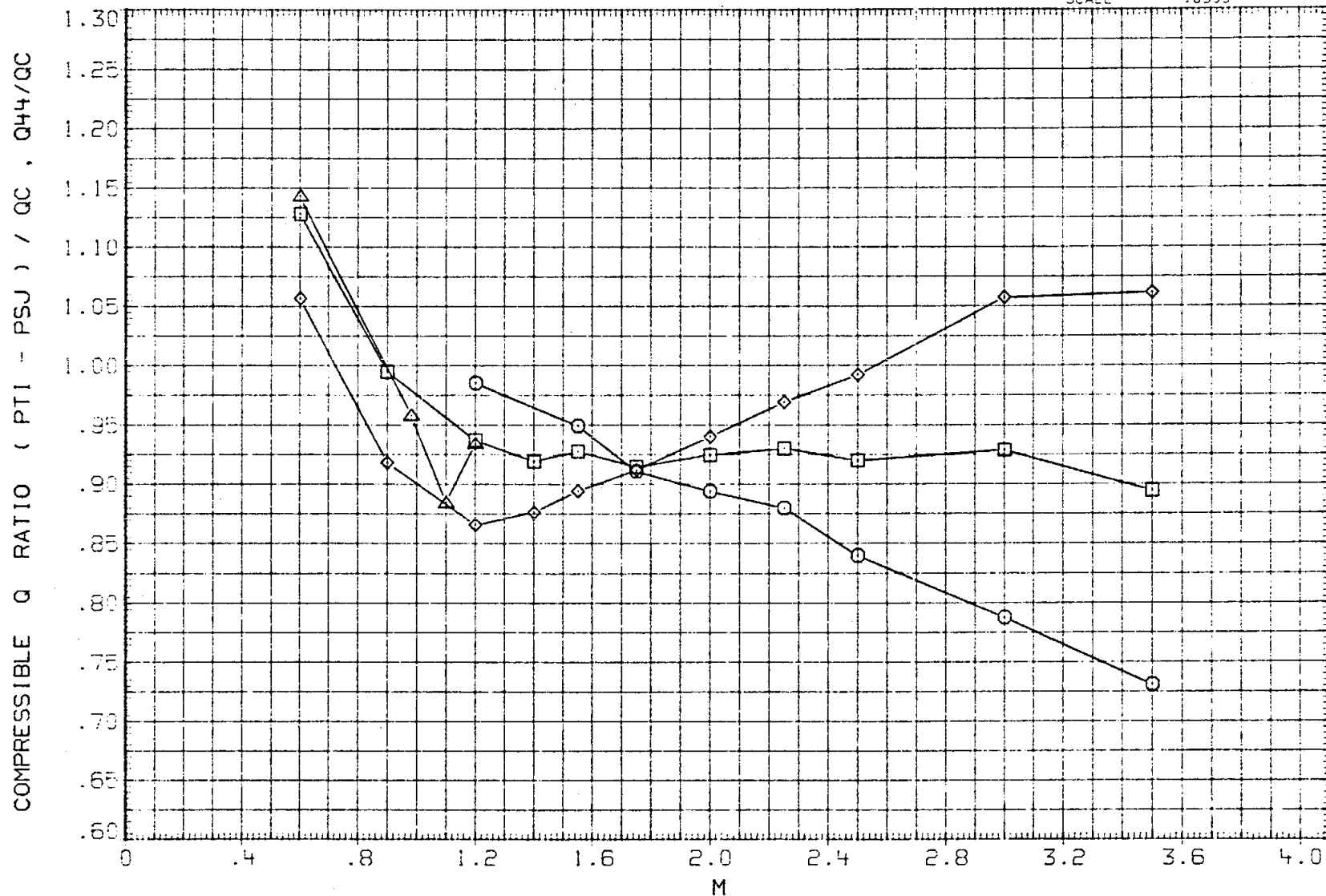


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

DATA SET	SYMBOL	CONFIGURATION	BETA	CLYCON	ALLCON	ODELAP	REFERENCE INFORMATION		
FE7B03	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
FE7B05	□	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LEEF	474.6000	IN.
FE7B07	◇	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	DRIF	935.6800	IN.
FE7B01	△	ARC 11-97-87-094 0A161 ORBITER - WING + RAKES	.000				XMRP	1076.6800	IN. X0
							YMRP	.0000	IN. Y0
							ZMRP	375.0000	IN. Z0
							SCALE	.6500	

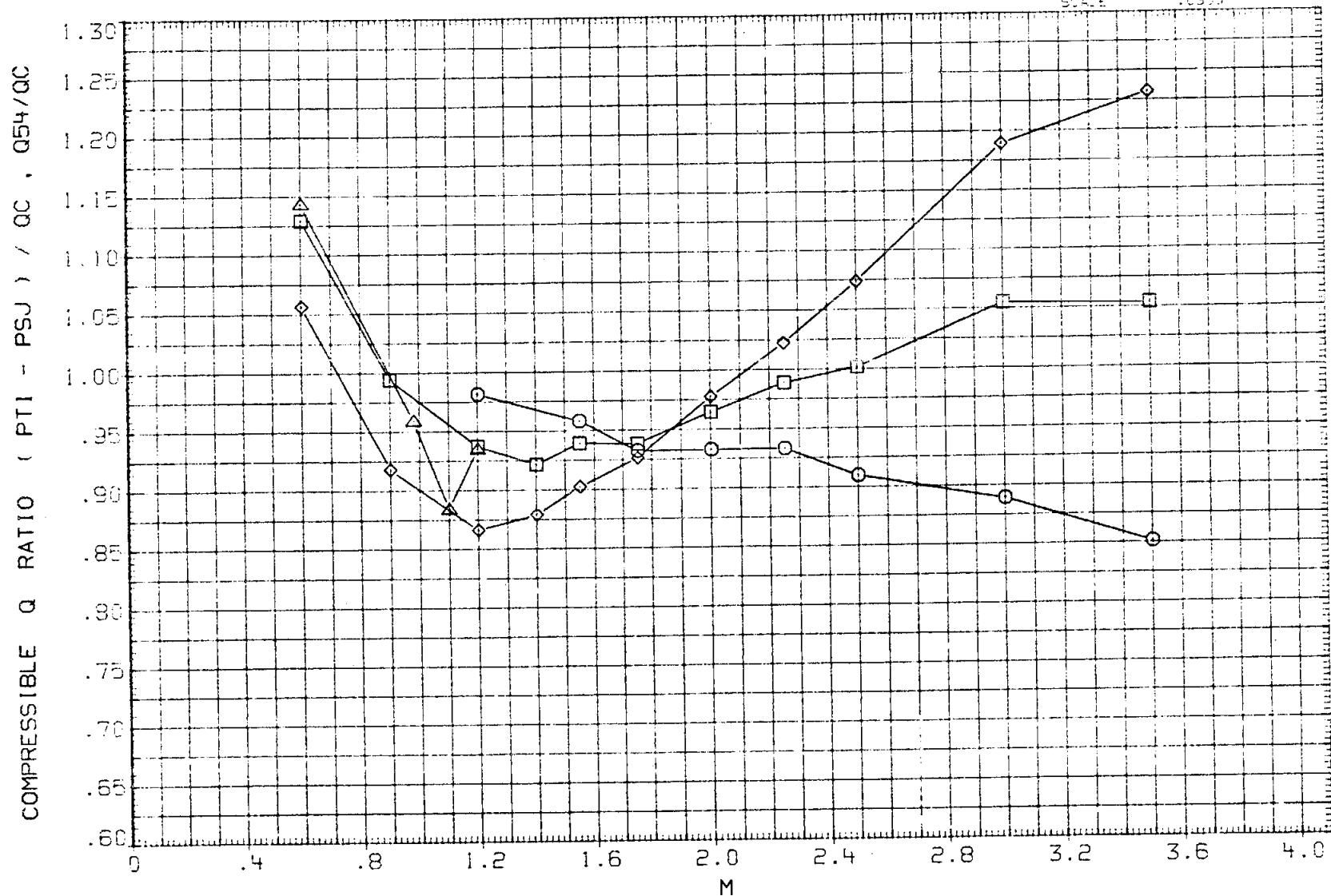


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO QIJ/QC RIGHT RAKE

(C) ALPHA = 12.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
FE7803	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
FE7805	□	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
FE7807	◇	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	935.6800	IN.
FE7801	△	ARC 11-97-87-094 0A161 ORBITER - WING + RAKES	.000			-7.170	XMPP	1076.6800	IN. XO
							YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0300	

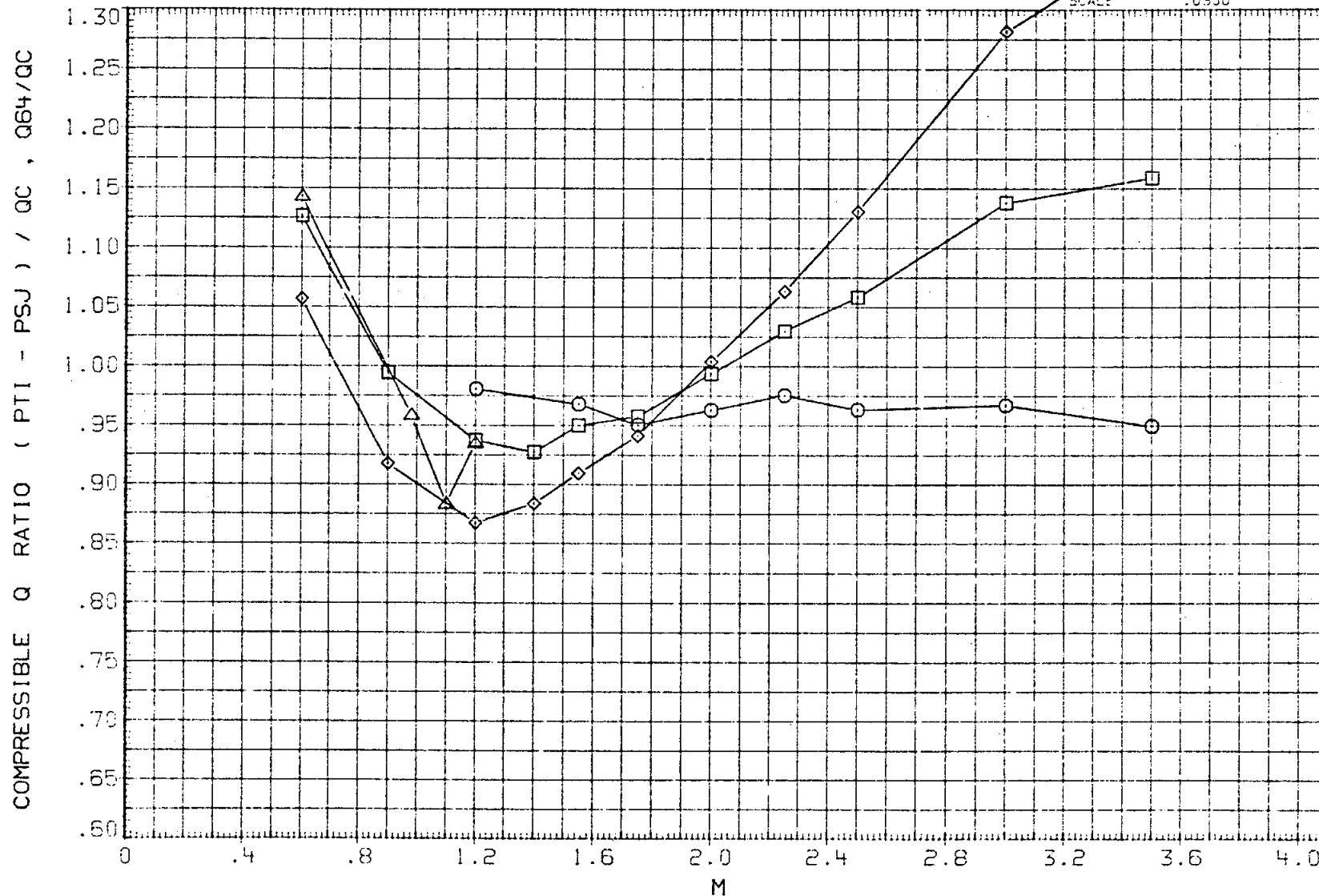


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOPLAP	REFERENCE INFORMATION		
FE7803	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2600.0000	50.771
FE7805	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LEOF	474.8000	IN.
FE7807	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	PRPF	936.6800	IN.
FE7801	DATA NOT AVAILABLE	.000				YMPP	1076.6800	IN. X0
						YMPP	.0000	IN. Y0
						ZMPP	375.0000	IN. Z0
						SCALE	.0300	

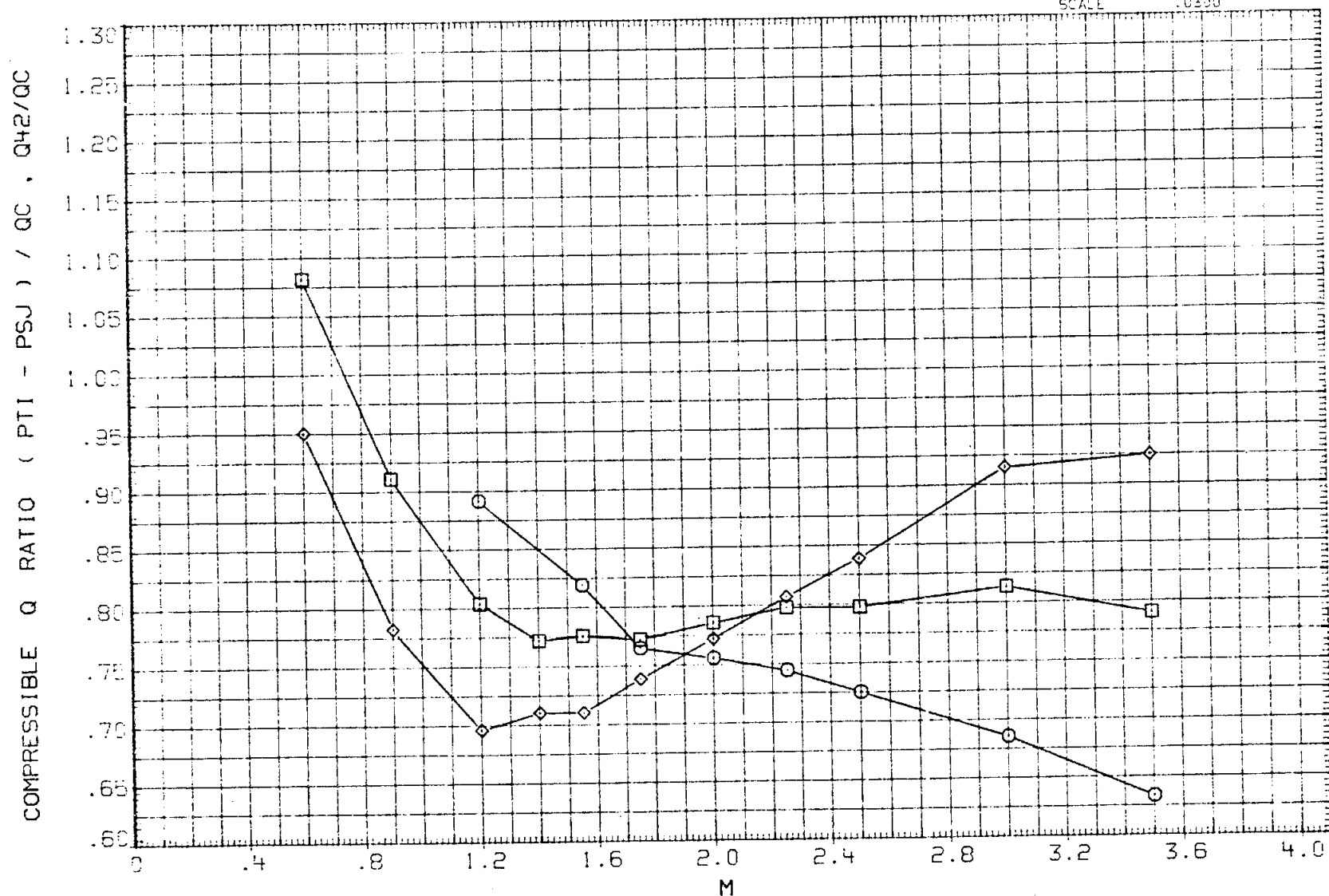


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

(D) ALPHA = 18.00

DATA SET SYMBOL		CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
FET303	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
FET305	□	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
FET307	◇	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6000	IN.
FET301	△	DATA NOT AVAILABLE	.000			-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

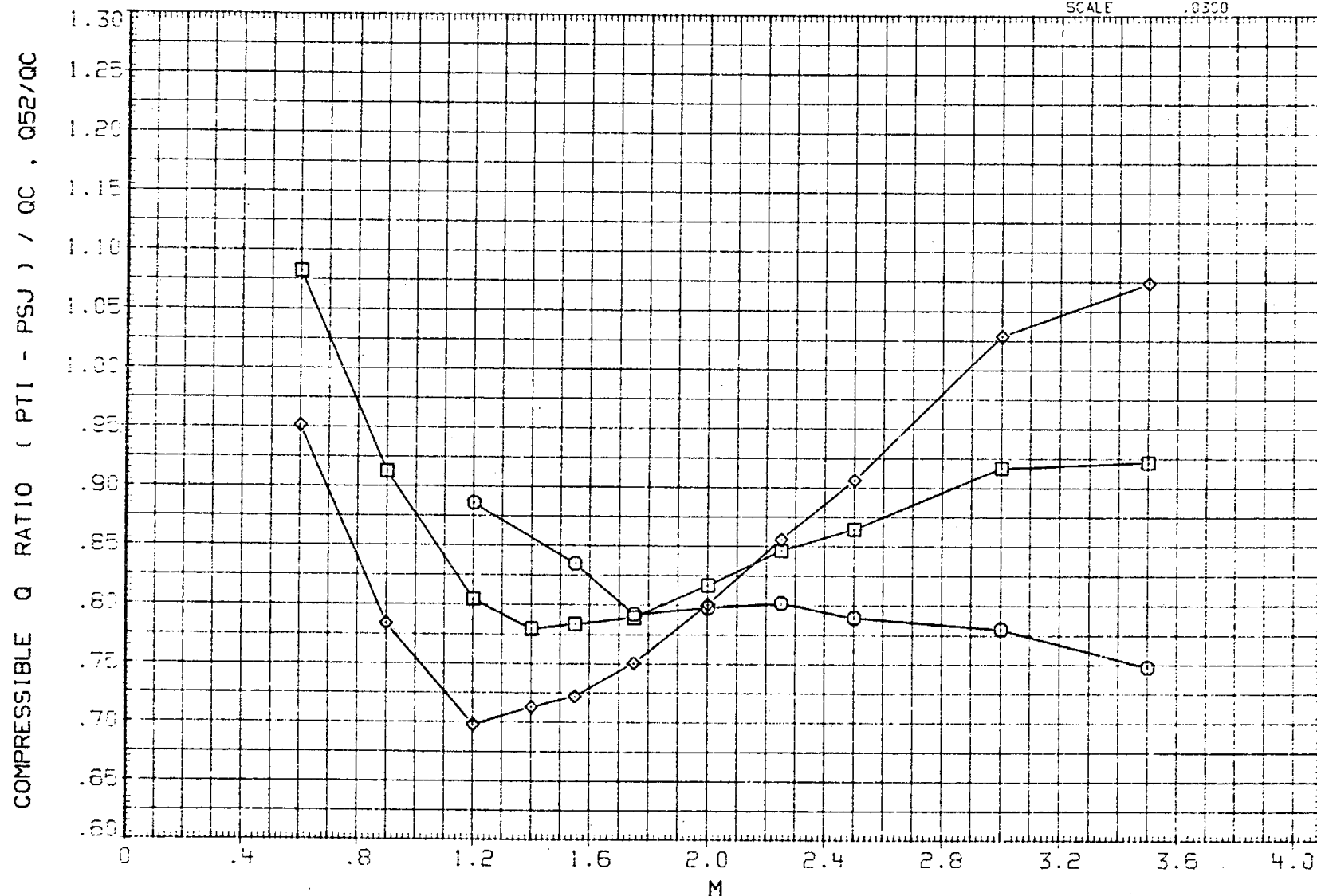


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

(D) ALPHA = 18.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELLIPN	ATLRON	BDPLAP	REFERENCE INFORMATION		
FE7803	○	ARC 11-87-87-184 CA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SRFP	2690.0000	50. FT.
FE7805	□	ARC 11-87-87-094 CA161 ORBITER + RAKES	.000	.000	.000	-7.170	LFOT	474.0000	IN.
FE7807	◇	ARC 11-87-87-094 CA161 ORBITER + RAKES	5.000	.000	.000	-7.170	SRFP	935.6900	IN.
FE7801	△	DATA NOT AVAILABLE	.000			-7.170	YMRP	1076.6900	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

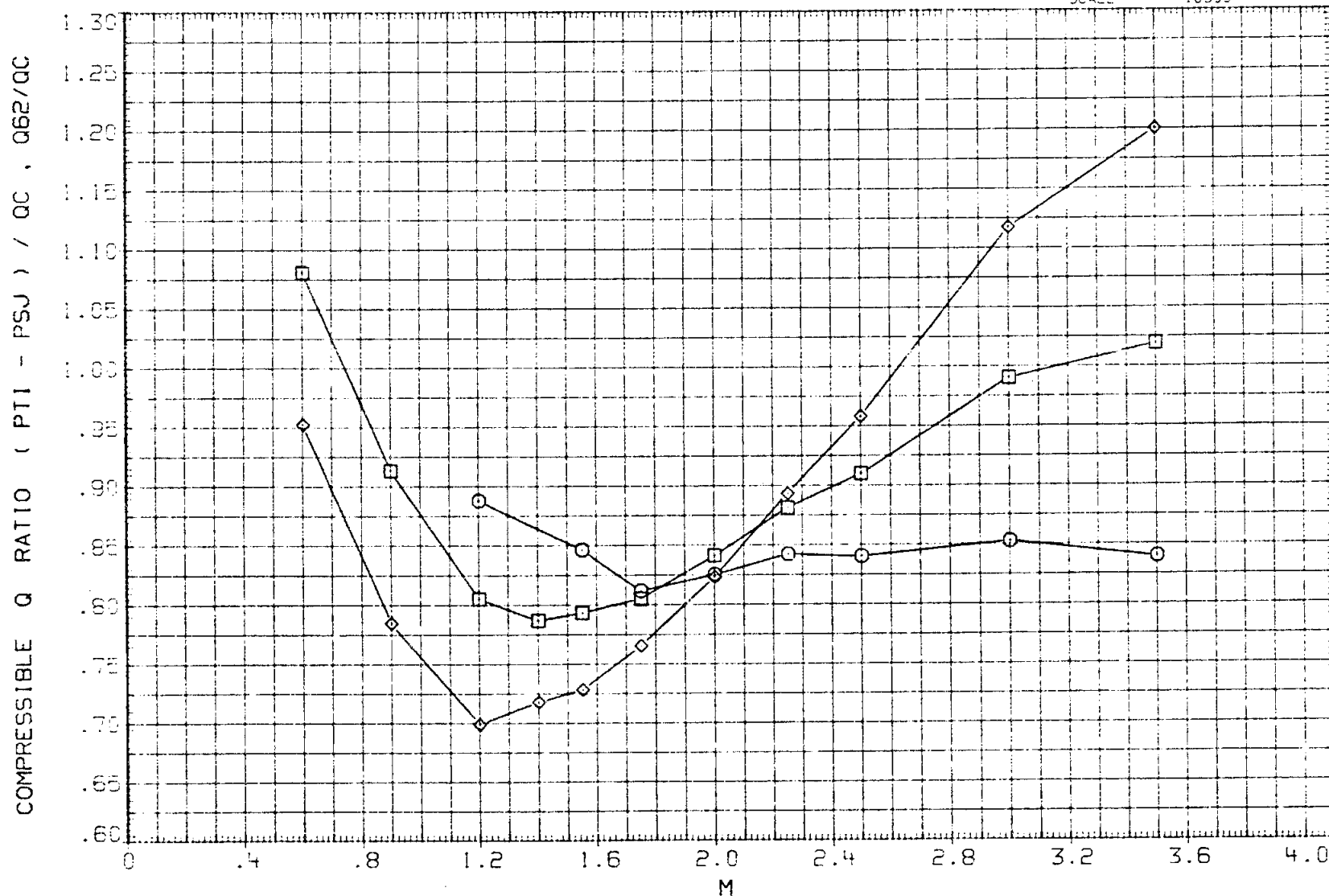


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1/QC RIGHT RAKE

(D) ALPHA = 18.00

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
FE7803	○ ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50.FT.
FE7805	□ ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
FE7807	◇ ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
FE7801	△ DATA NOT AVAILABLE	.000			-7.170	XMRP	1076.6800	IN. X0
						YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

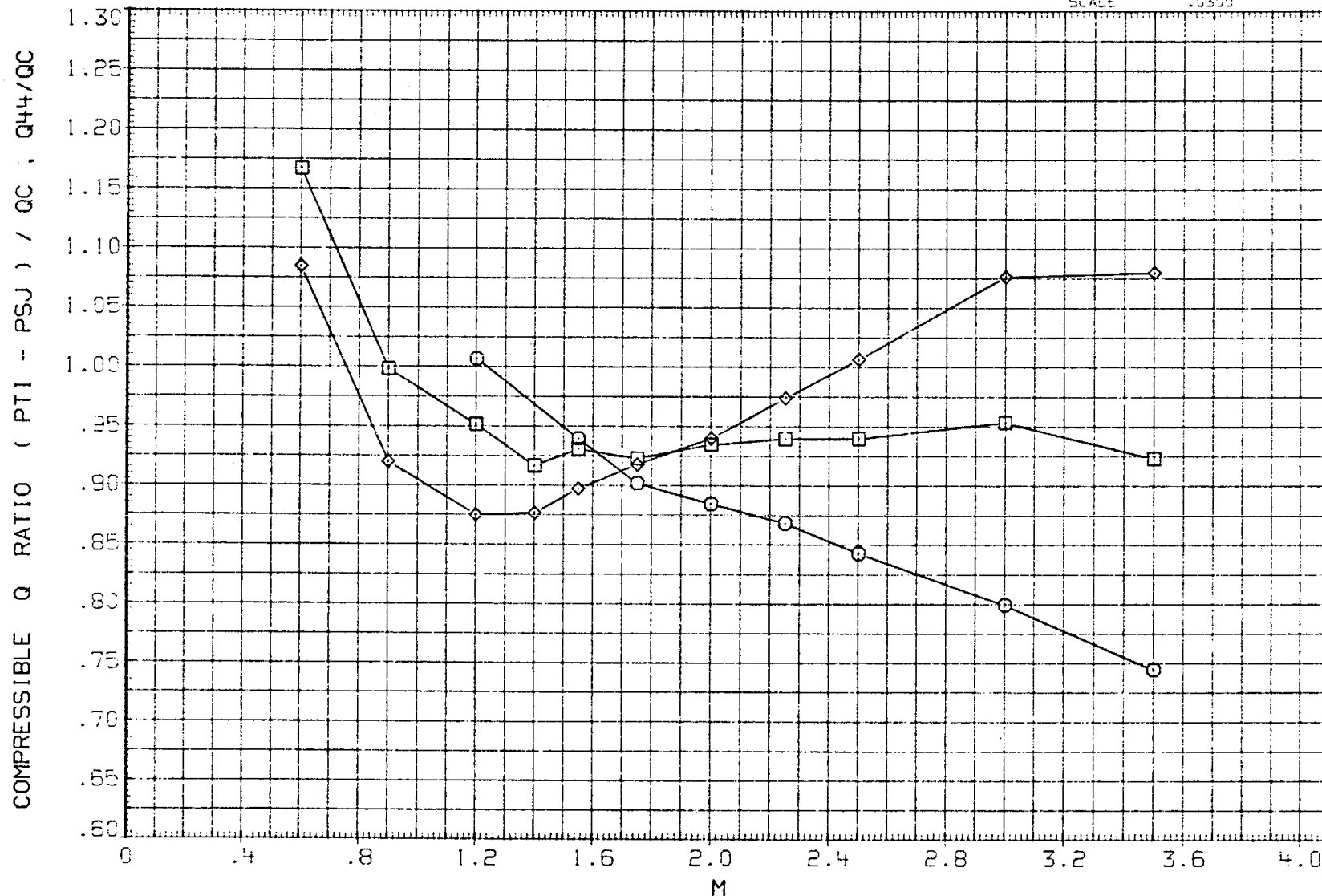


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BEFLAP	REFERENCE INFORMATION	
REF 001	ARC 11-97-87-094 CA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SRCP	2690.0000 50. FT.
REF 002	ARC 11-97-87-094 CA161 ORBITER + RAKES	.000	.000	.000	-7.170	LRCP	574.8000 IN.
REF 003	ARC 11-97-87-094 CA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BRCP	936.6600 IN.
REF 004	ARC 11-97-87-094 CA161 ORBITER + RAKES	.000	.000	.000	-7.170	XMRP	1076.6600 IN. XO
REF 005	DATA NOT AVAILABLE					YMRP	.0000 IN. YO
						ZMRP	375.0000 IN. ZO
						SCALE	.0300

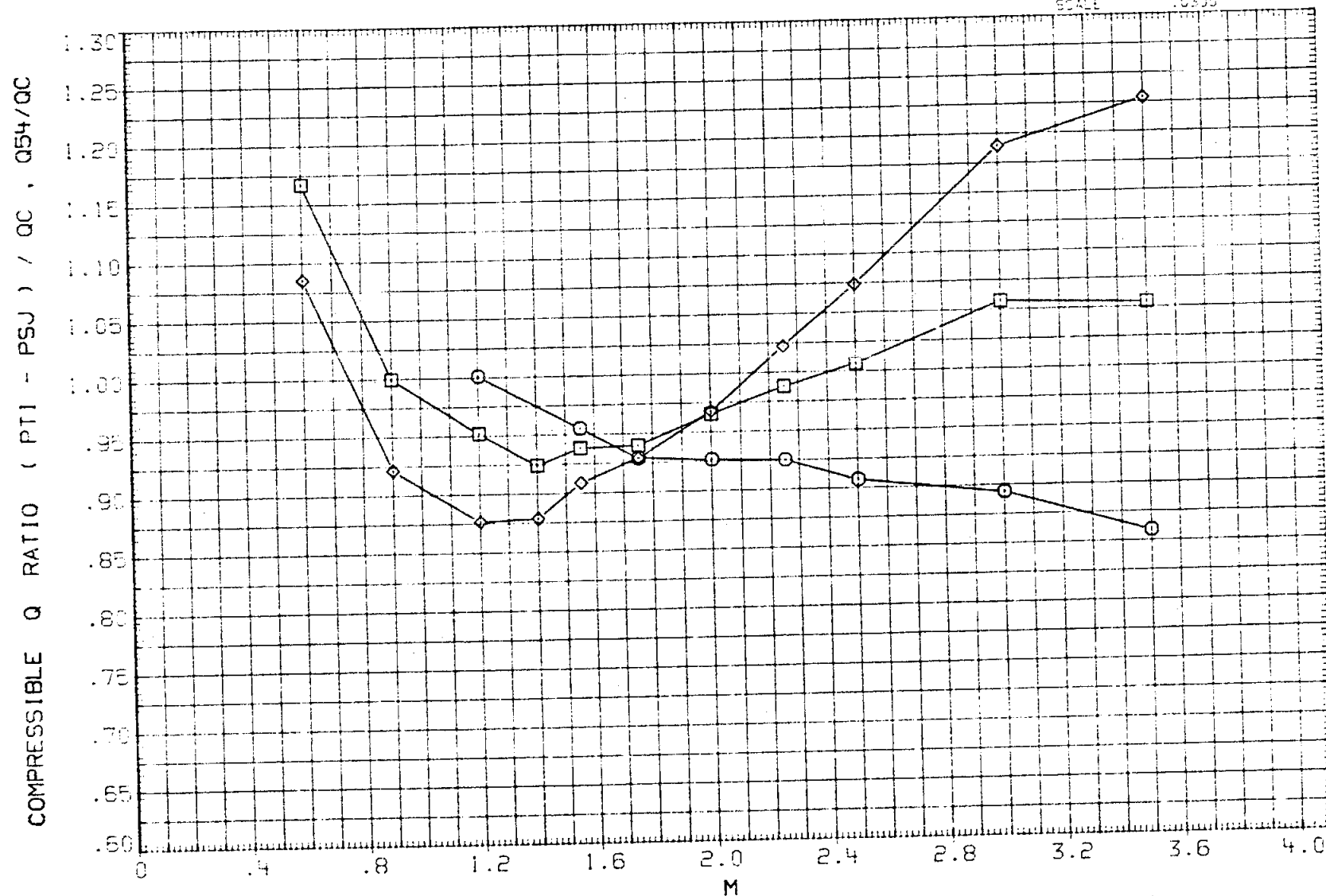


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1/QC RIGHT RAKE

(D) ALPHA = 18.00



DATA SET SYMBOL		CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
FE7B03	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50.FT.
FL7B05	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
FE7B07	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
FE7B01	△	DATA NOT AVAILABLE	.000			-7.170	XMRF	1075.6800	IN. XO
							YMRF	.0000	IN. YO
							ZMRF	375.0000	IN. ZO
							SCALE	.0390	

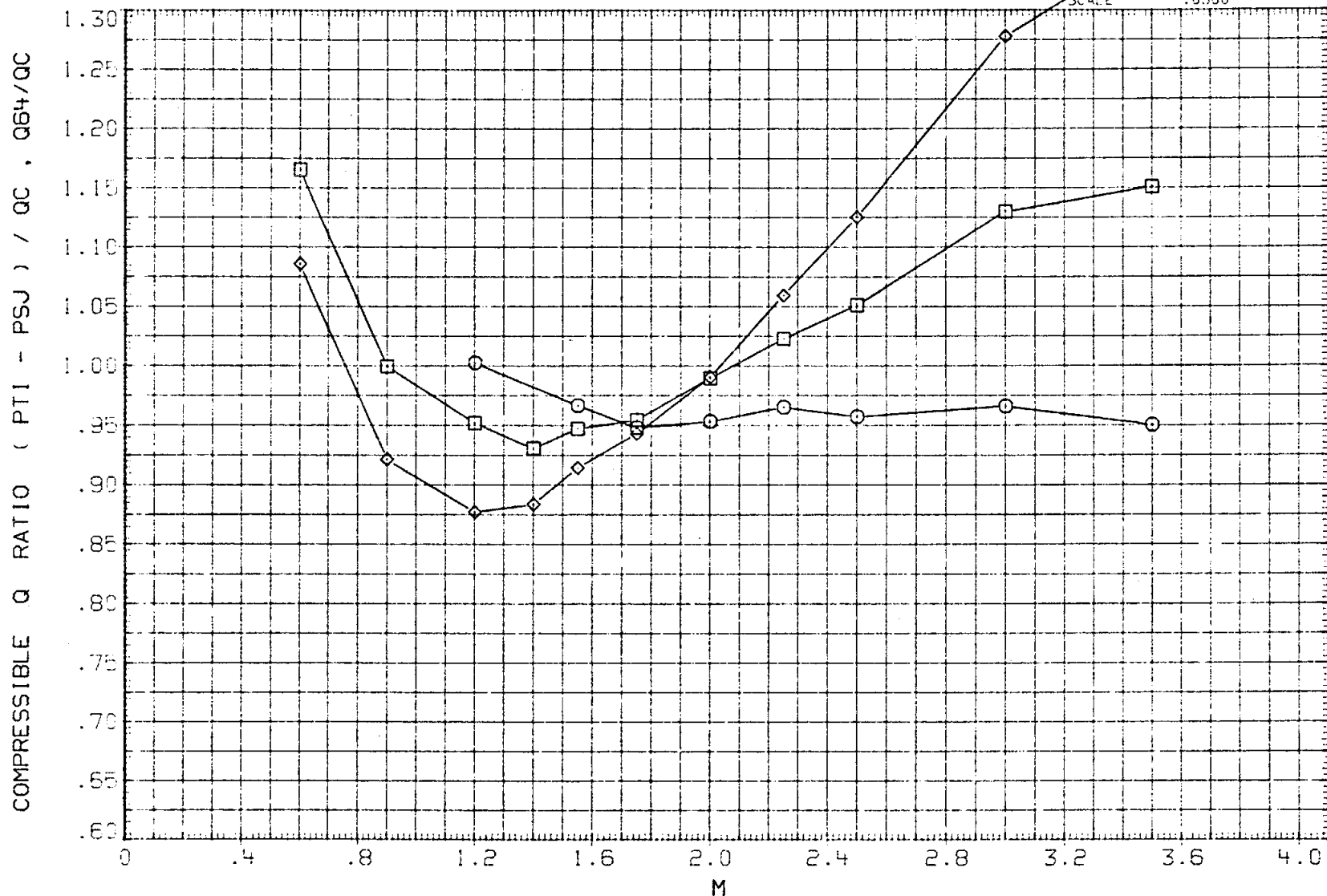


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO QI/QC RIGHT RAKE

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

SOFLAP

REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	SOFLAP
FE2803	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.175
FE2805	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.175
FE2807	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.175
FE2801	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000	.000	.000	-7.175

REFERENCE INFORMATION	SO.FT.
SREF	2550.0000
LRFT	175.0000
BRFT	936.6800
XMPP	1076.6800
YMPP	.0000
ZMPP	375.0000
SCALE	.6300

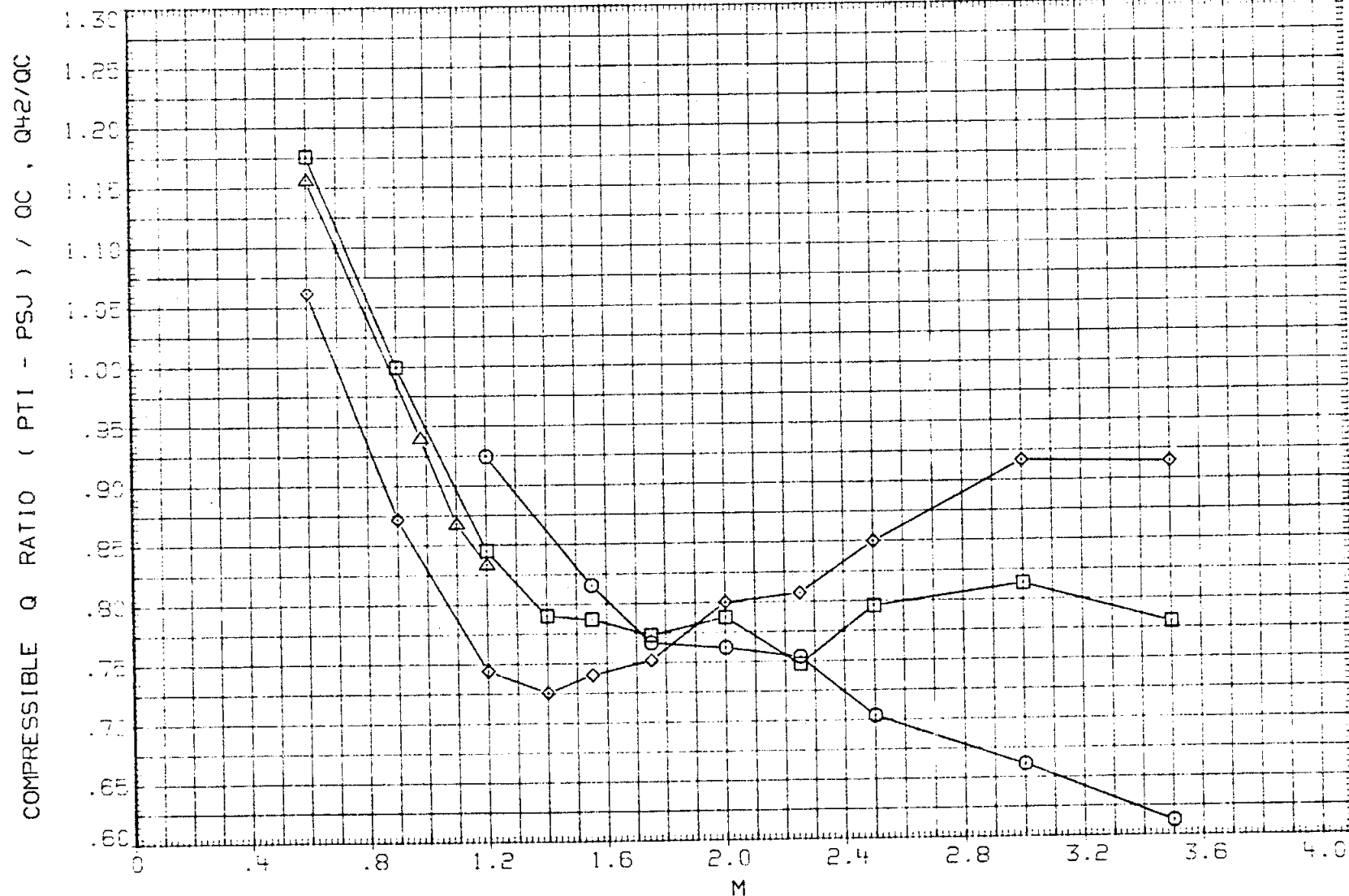


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

(E) ALPHA = 24.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
FE7803	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
FE7805	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
FE7807	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
FE7801	△	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000			-7.170	XMPP	1076.6800	IN. XO
							YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0300	

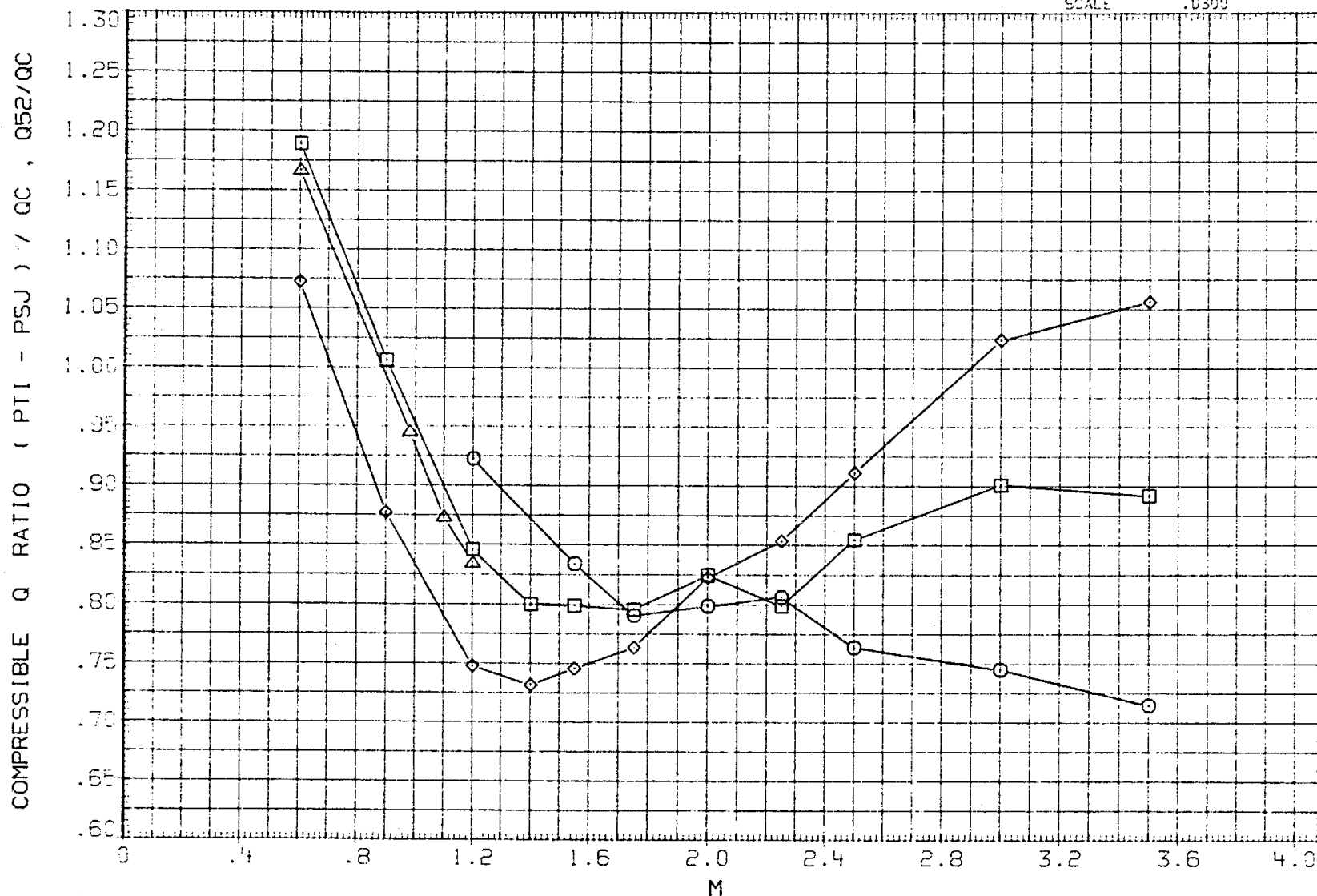


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1/QC RIGHT RAKE

(E) ALPHA = 24.00

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

SDFLAT

REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	SDFLAT
FE1803	ARC 11-97-87-094 CA161 ORBITER + RAKES	-5.000	.000	.000	-7.170
FE1805	ARC 11-97-87-094 CA161 ORBITER + RAKES	.000	.000	.000	-7.170
FE1807	ARC 11-97-87-094 CA161 ORBITER + RAKES	5.000	.000	.000	-7.170
FE1801	ARC 11-97-87-094 CA161 ORBITER - WING + RAKES	.000	.000	.000	-7.170

REFERENCE INFORMATION	VALUE	UNIT
SRF	2690.0000	50. FT.
LRP	474.8000	IN.
ORF	935.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	0.0000	

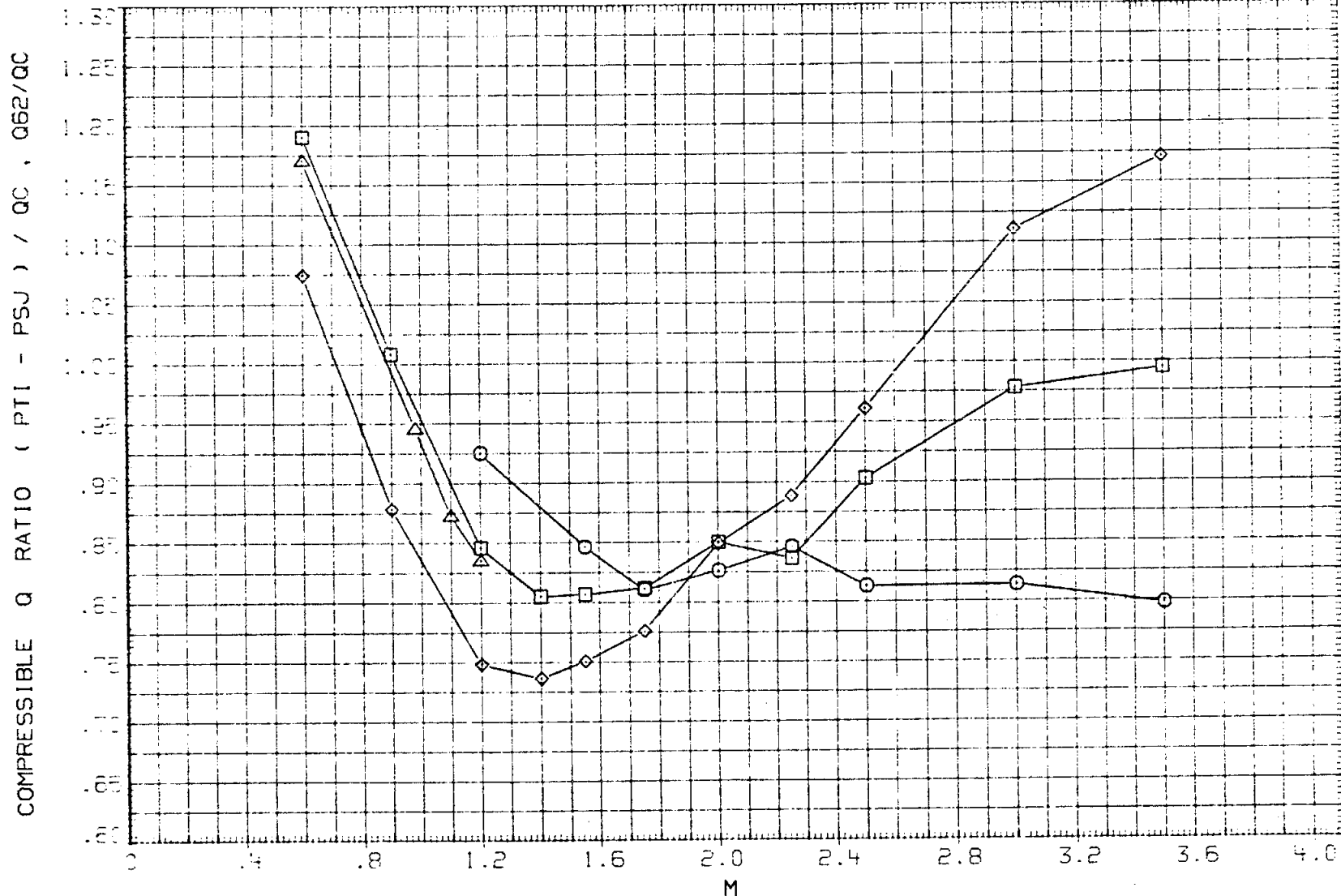


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO QIJ/QC RIGHT RAKE

(E) ALPHA = 24.00

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
FET803	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
FET805	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
FET807	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
FET801	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	XMPP	1076.6800	IN. XO
						YMPP	.0000	IN. YO
						ZMPP	375.0000	IN. ZO
						SCALE	.0300	

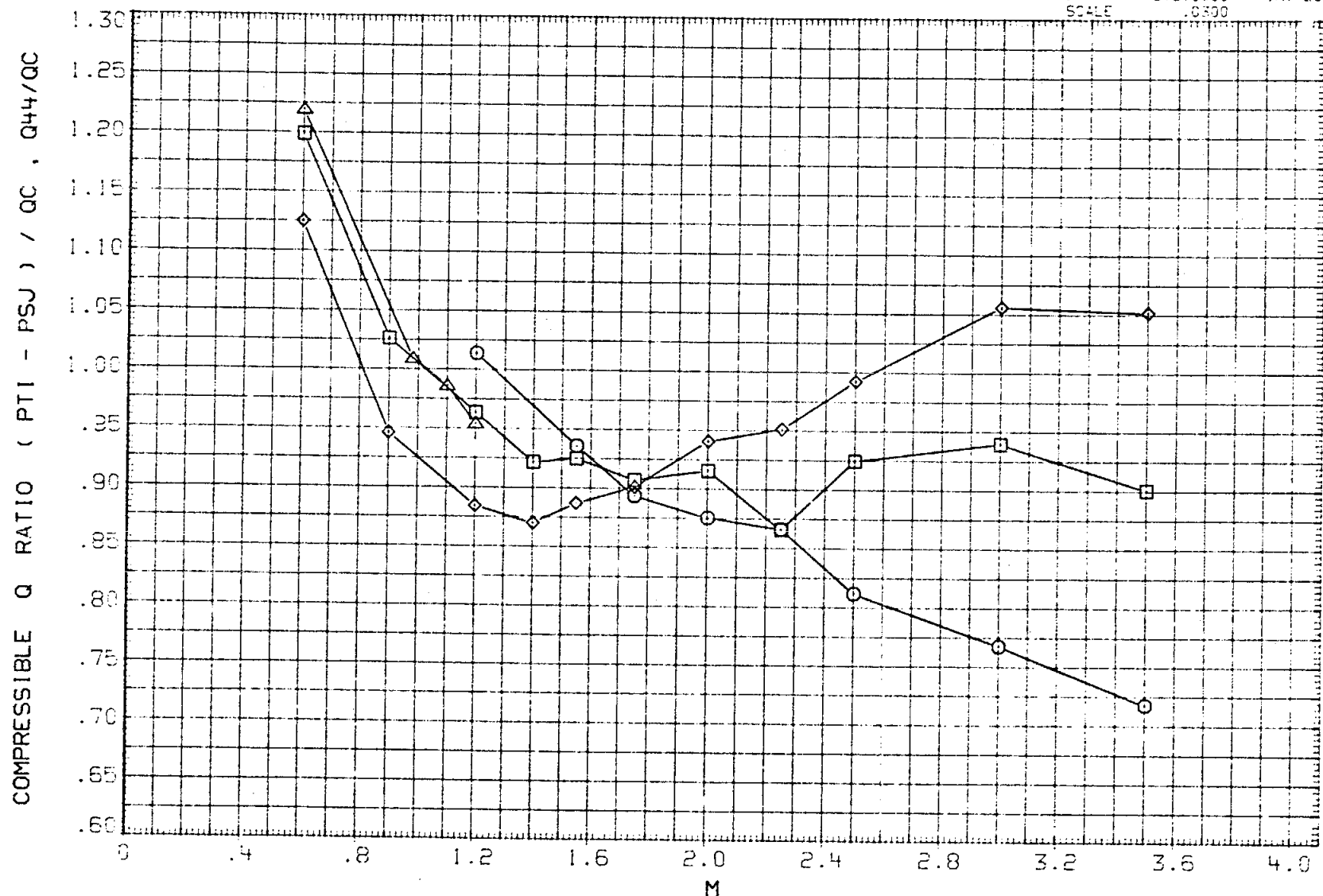


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO QIJ/QC RIGHT RAKE

(E) ALPHA = 24.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAT	REFERENCE INFORMATION
FE7803	□	ARC 11-97-87-09* CA161 ORBITER + RAKES	5.000	.000	.000	-7.170	SREF 2750.0000 SQ.FT.
FE7805	□	ARC 11-97-87-09* CA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF 470.9000 IN.
FE7807	◇	ARC 11-97-87-09* CA161 ORBITER + RAKES	5.000	.000	.000	-7.170	URRF 936.6000 IN.
FE7801	△	ARC 11-97-87-09* CA161 ORBITER + WING + RAKES	.000			7.170	XMPP 1078.8900 IN. XO
							YMPP .0000 IN. YO
							ZMPP 375.0000 IN. ZO
							SCALE .0300

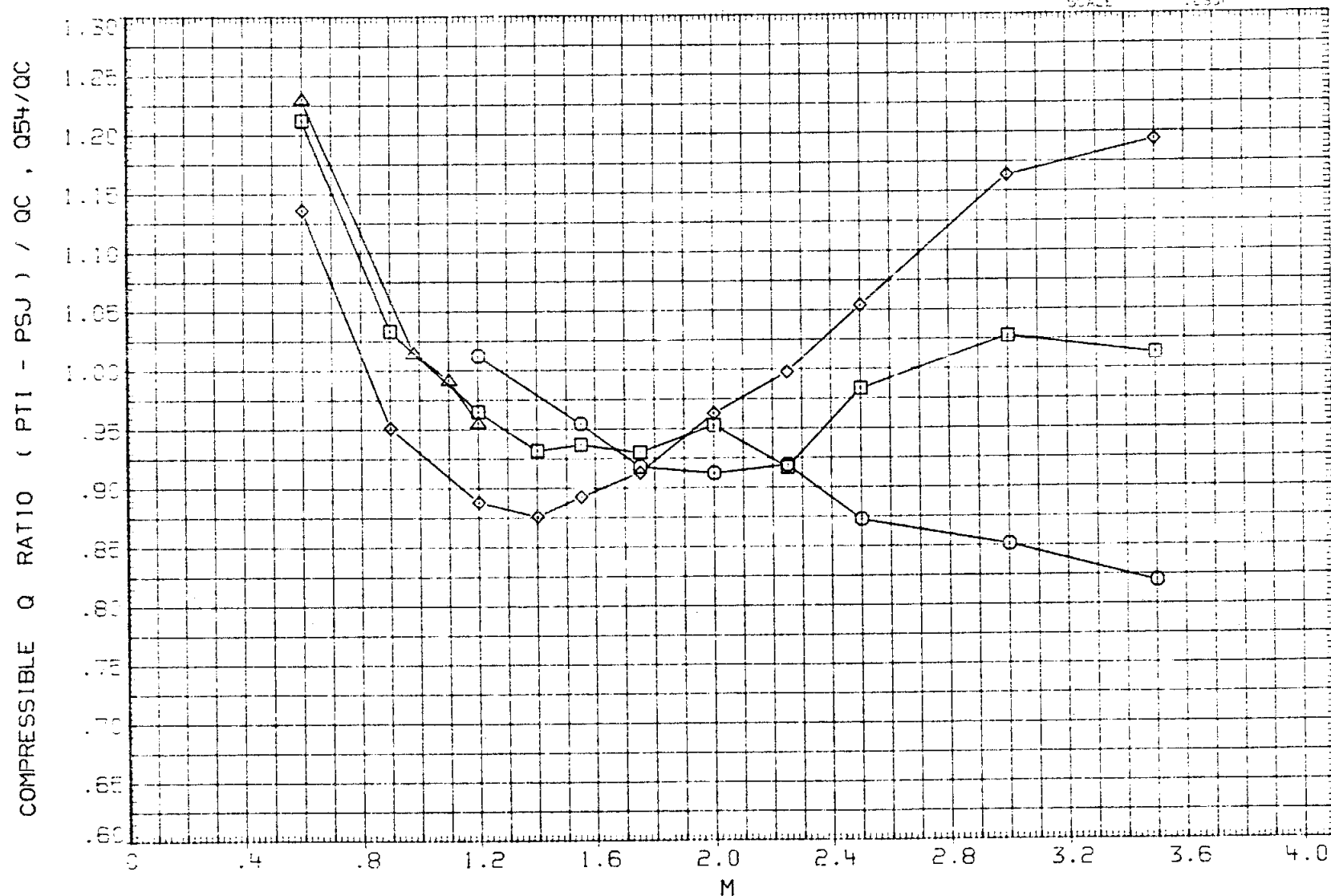


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

(E) ALPHA = 24.00

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
FE7B03	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50.FT.
FE7B05	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
FE7B07	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
FE7B01	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	XMRP	1076.6800	IN. XO
						YMRP	.0000	IN. YO
						ZMRP	375.0000	IN. ZO
						SCALE	.0300	

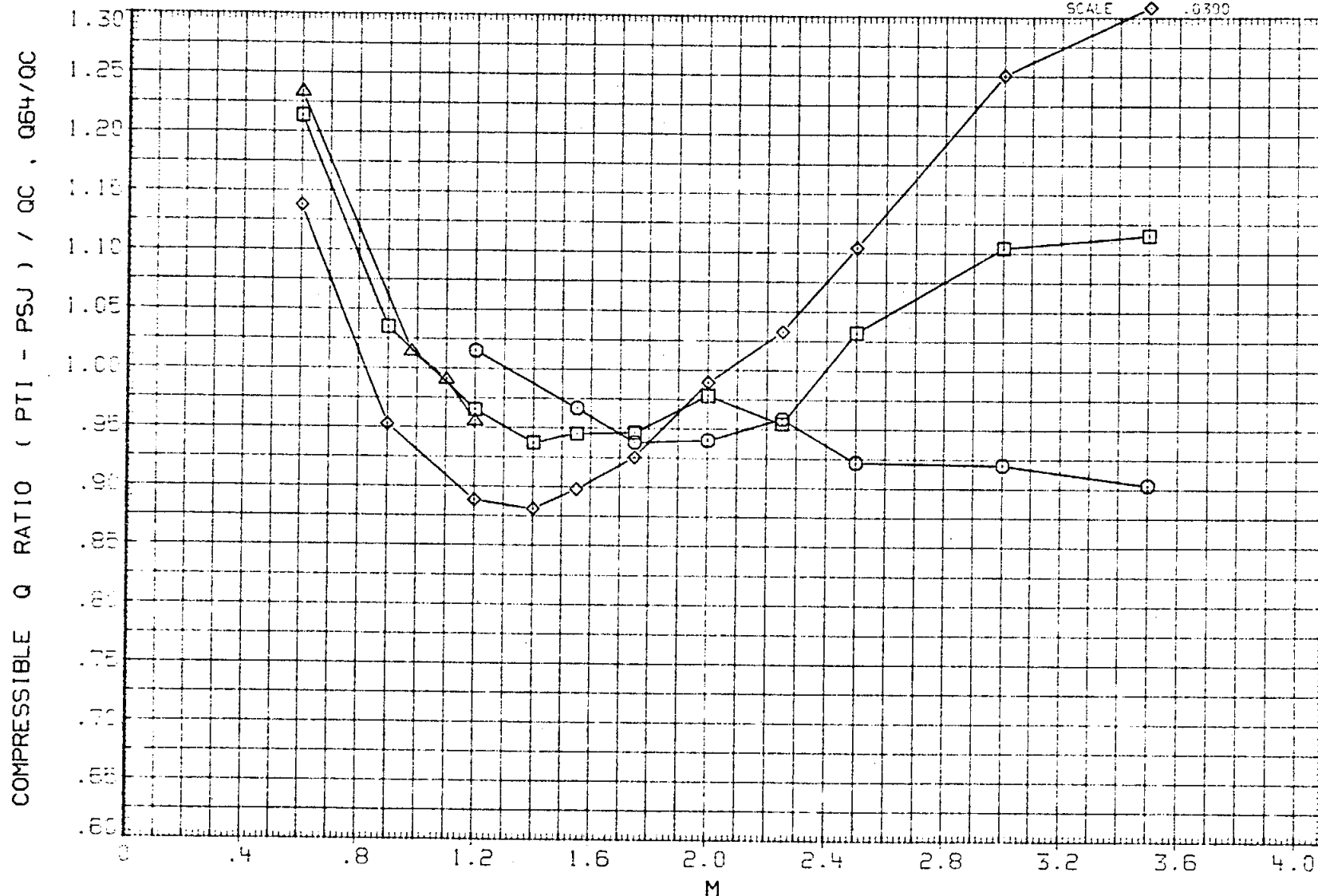


FIG. 23 EFFECT OF BETA ON COMPRESSIBLE Q RATIO Q1J/QC RIGHT RAKE

(E) ALPHA = 24.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILERON	BDPLAT	REFERENCE INFORMATION		
AP00003	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2890.0000	50.771
AP00004	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	4794.8000	100.000
AP00005	△	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	100.000
AP00006	◇	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	XM-P	1075.6800	100.000
							YM-P	1.0000	100.000
							ZM-P	375.0000	100.000
							SCALE	.0000	100.000

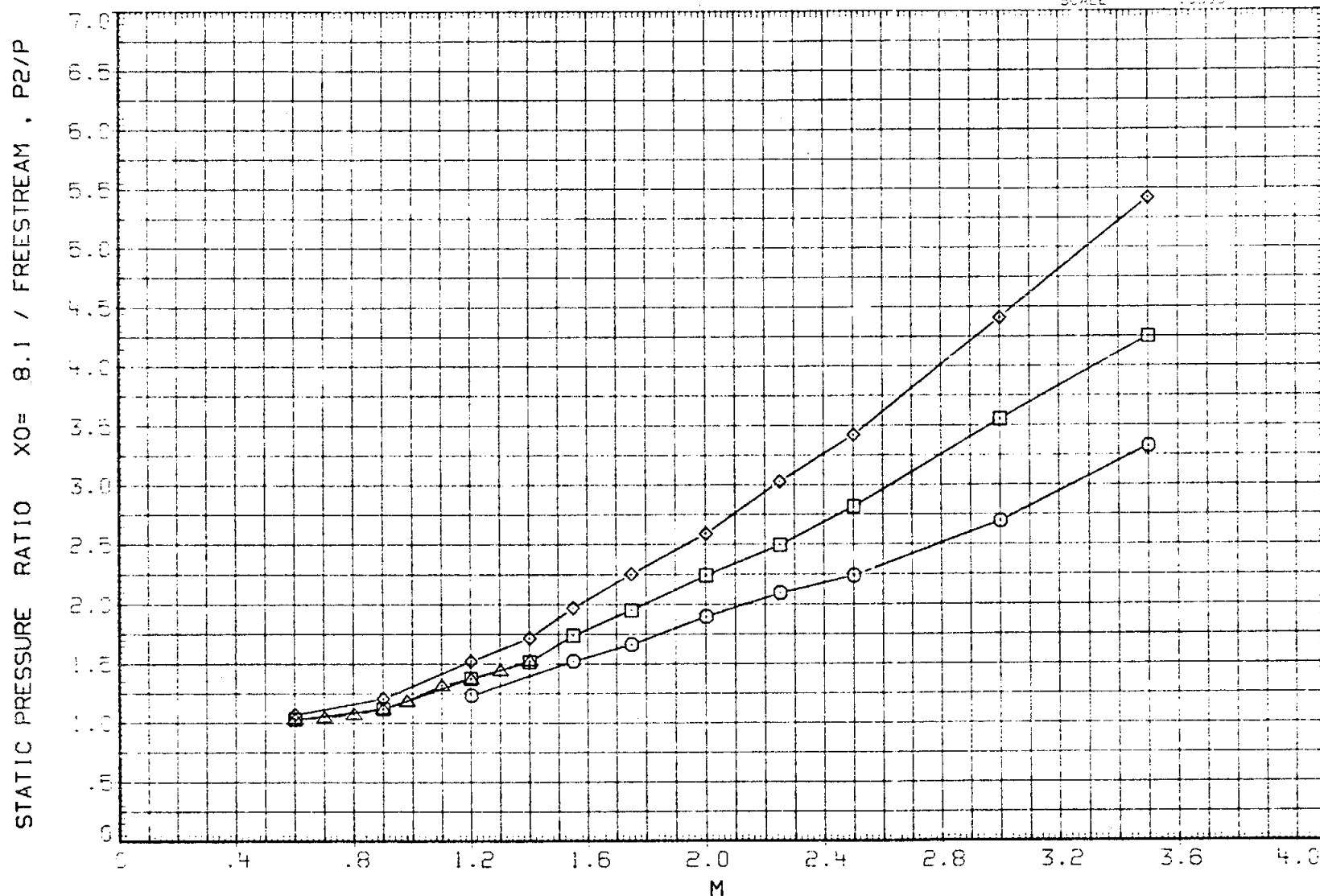


FIG. 24 EFFECT OF BETA ON STATIC PRESSURE RATIO  $PSJ/P$  RIGHT RAKE

(A) ALPHA = .00



DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILERON	BDFLAP	REFERENCE INFORMATION		
AE7803	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
AE7805	□	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
AE7807	△	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
AE7801	△	ARC 11-97-87-094 0A161 ORBITER - WING + RAKES	.000			-7.170	XMPP	1076.6800	IN. XO
							YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0300	

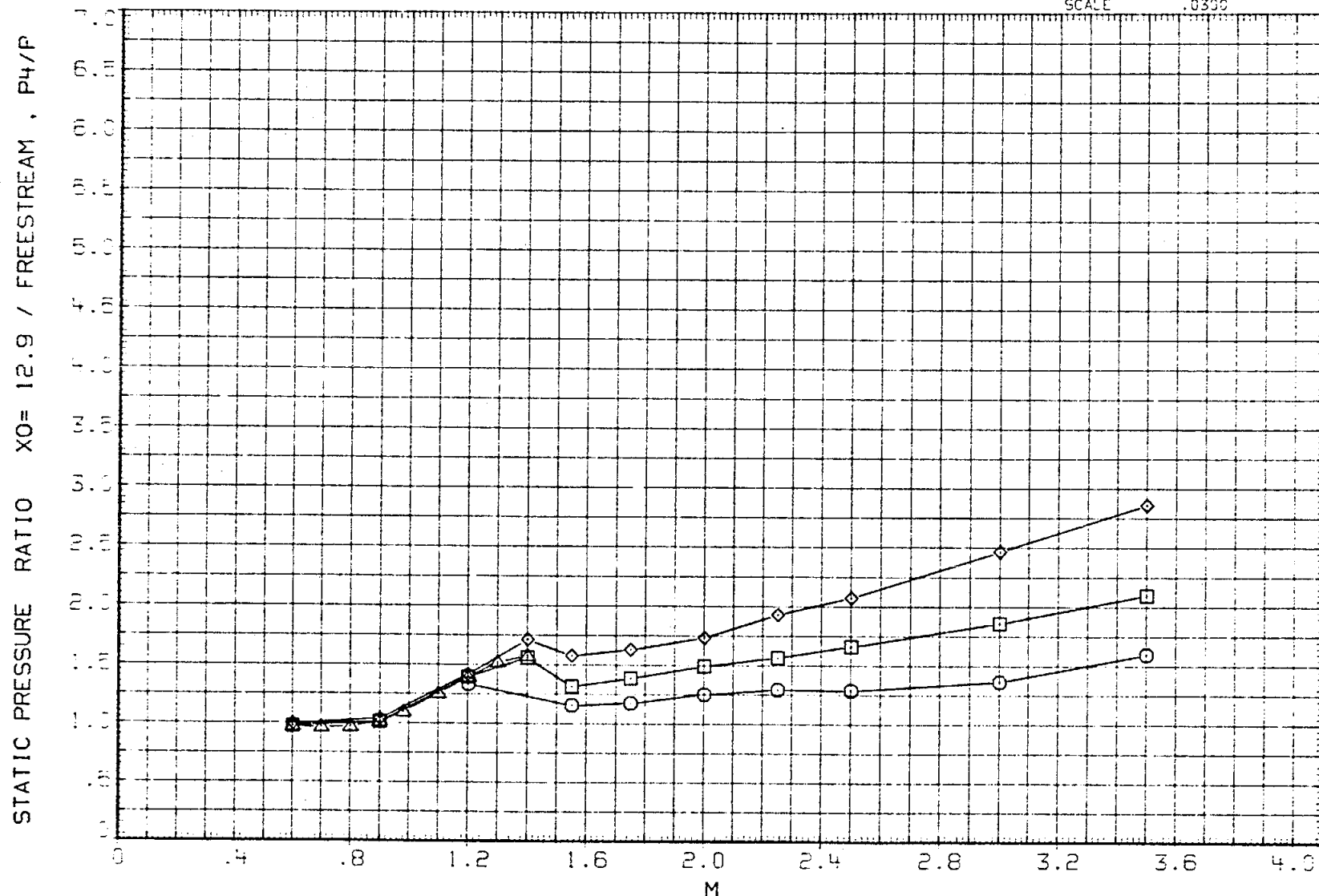


FIG. 24 EFFECT OF BETA ON STATIC PRESSURE RATIO PSJ/P RIGHT RAKE

(A) ALPHA = .00

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BDFLAP

REFERENCE INFORMATION

AL7803 ○ ARC 11-97-87-094 CA161 ORBITER + RAKES  
 AL7804 □ ARC 11-97-87-094 CA161 ORBITER + RAKES  
 AL7805 ◇ ARC 11-97-87-094 CA161 ORBITER + RAKES  
 AL7806 △ DATA NOT AVAILABLE

-5.000 .000 .000 -7.170  
 .000 .000 .000 -7.170  
 5.000 .000 .000 -7.170  
 .000

CRCT 1000.0000 IN. X0  
 LREA 424.6000 IN.  
 BREF 936.6800 IN.  
 YMRP 1076.6800 IN. Y0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE .0300

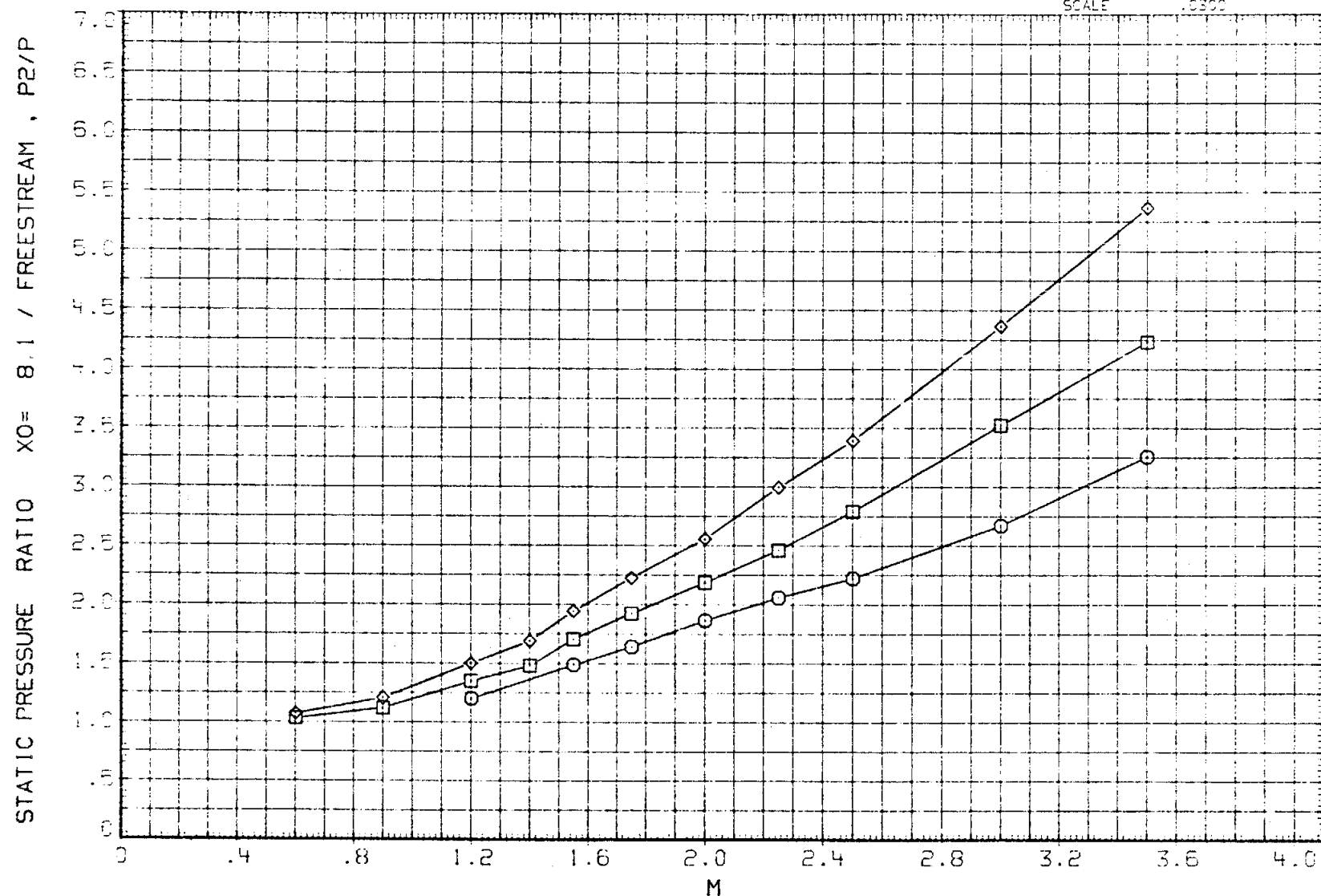


FIG. 24 EFFECT OF BETA ON STATIC PRESSURE RATIO PSJ/P RIGHT RAKE

(B) ALPHA = 6.00

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
ARC 11-97-87-094	OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
ARC 11-97-87-094	OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LPEF	474.8000	IN.
ARC 11-97-87-094	OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	335.6000	IN.
ARC 11-97-87-094	OA161 ORBITER + RAKES	.000	.000	.000	-7.170	XYRP	1076.6900	IN. XO
						YMRP	.0000	IN. YO
						ZMRP	375.0000	IN. ZO
						SCALE	.0300	

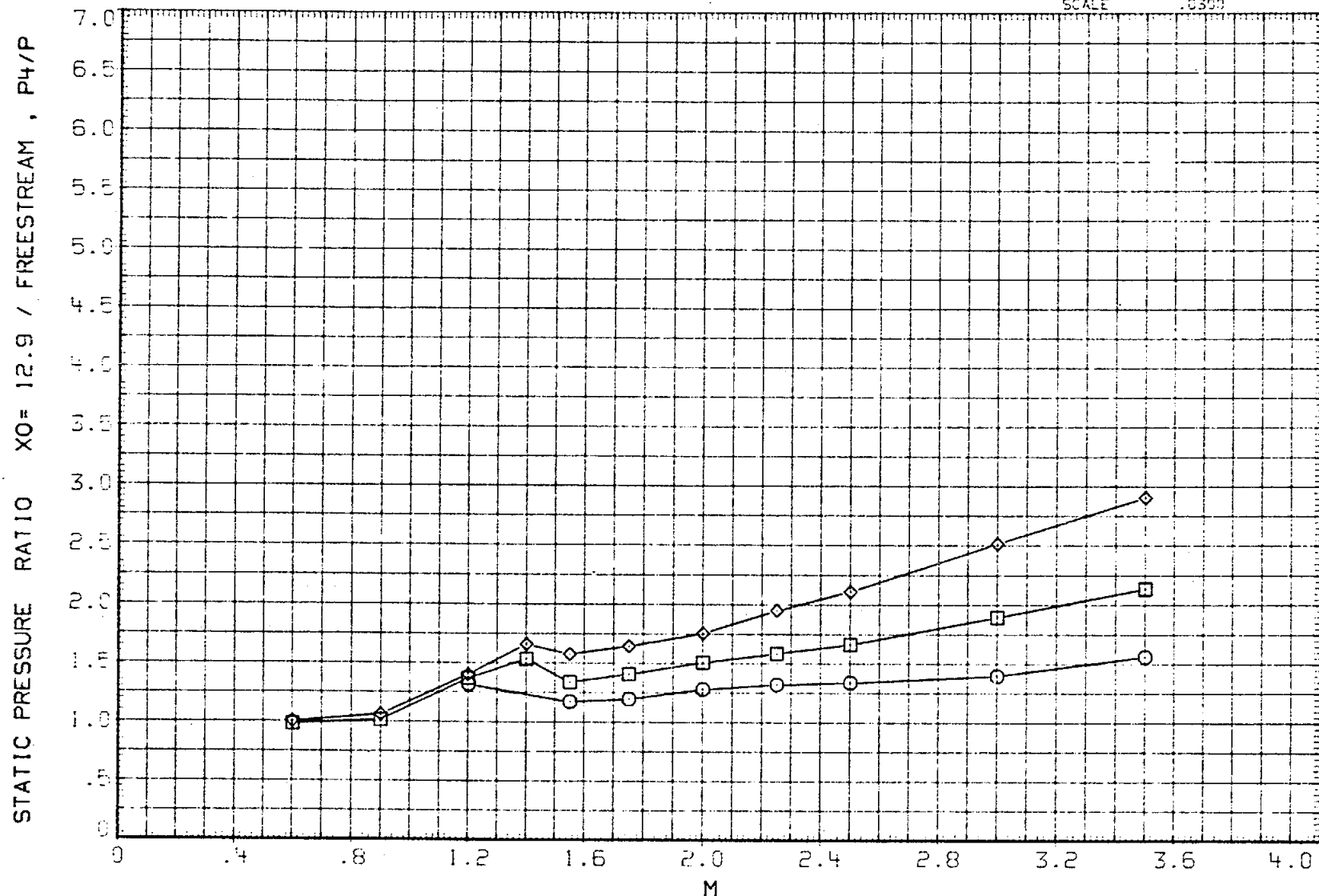


FIG. 24 EFFECT OF BETA ON STATIC PRESSURE RATIO PSJ/P RIGHT RAKE

(B) ALPHA = 6.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDCLAP	REFERENCE INFORMATION		
AS10003	○	ARC 11-97-87-094 04161 ORBITER + RAKES	-5.000	.000	.000	-7.170	WREF	2690.0000	50. FT.
AS10006	□	ARC 11-97-87-094 04161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
AS10007	◇	ARC 11-97-87-094 04161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
AS10001	△	ARC 11-97-87-094 04161 ORBITER - WING + RAKES	.000				XMRP	1076.6800	IN. X0
							YMRP	.0000	IN. Y0
							ZMRP	375.0000	IN. Z0
							SCALE	.0300	

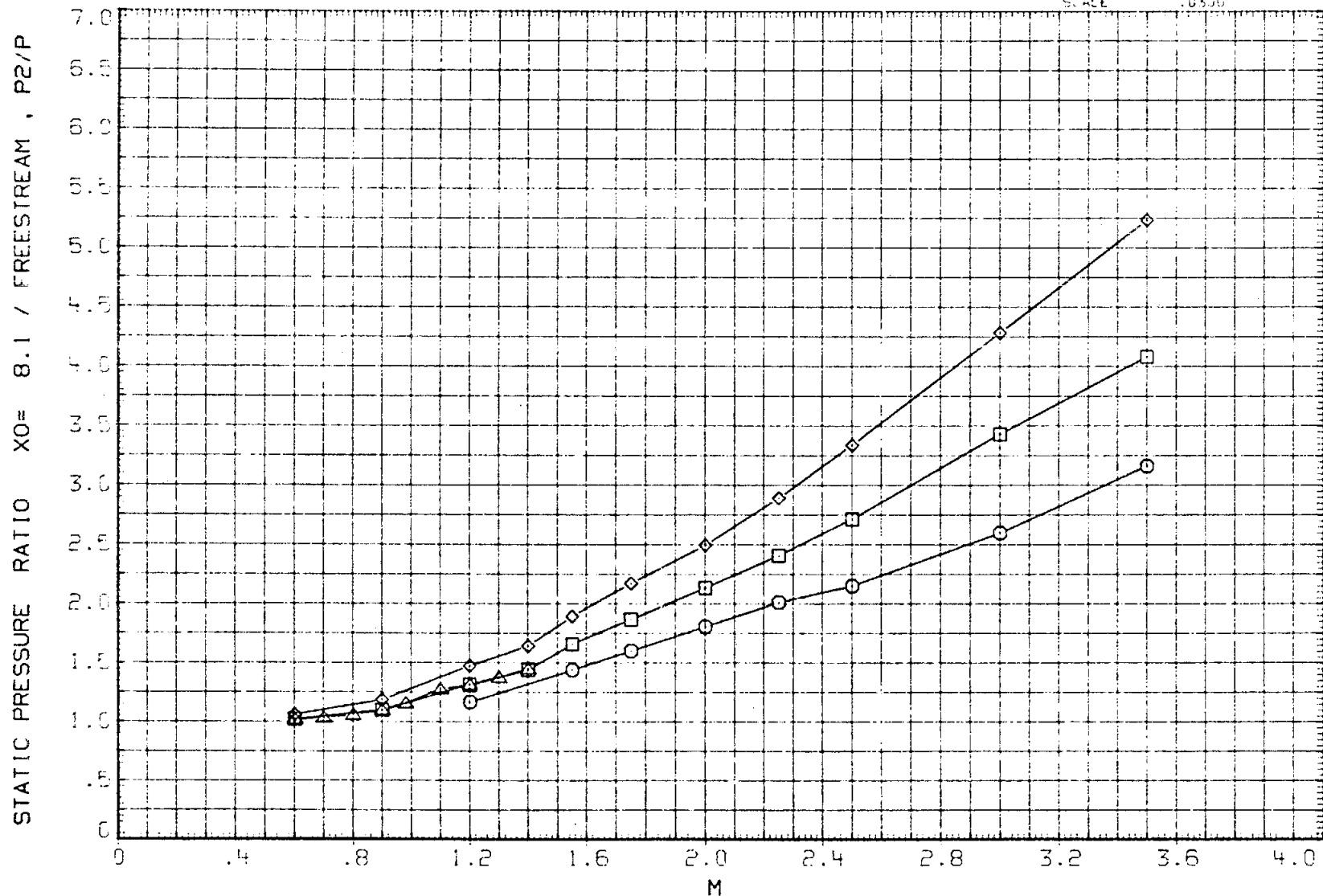


FIG. 24 EFFECT OF BETA ON STATIC PRESSURE RATIO PSJ/P RIGHT RAKE

(C) ALPHA = 12.00

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION	
AE7803	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000 SQ.FT.
AE7805	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000 IN.
AE7807	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800 IN.
AE7801	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000			-7.170	XMPP	1076.6800 IN. XO
						YMPP	.0000 IN. YO
						ZMPP	375.0000 IN. ZO
						SCALE	.0300

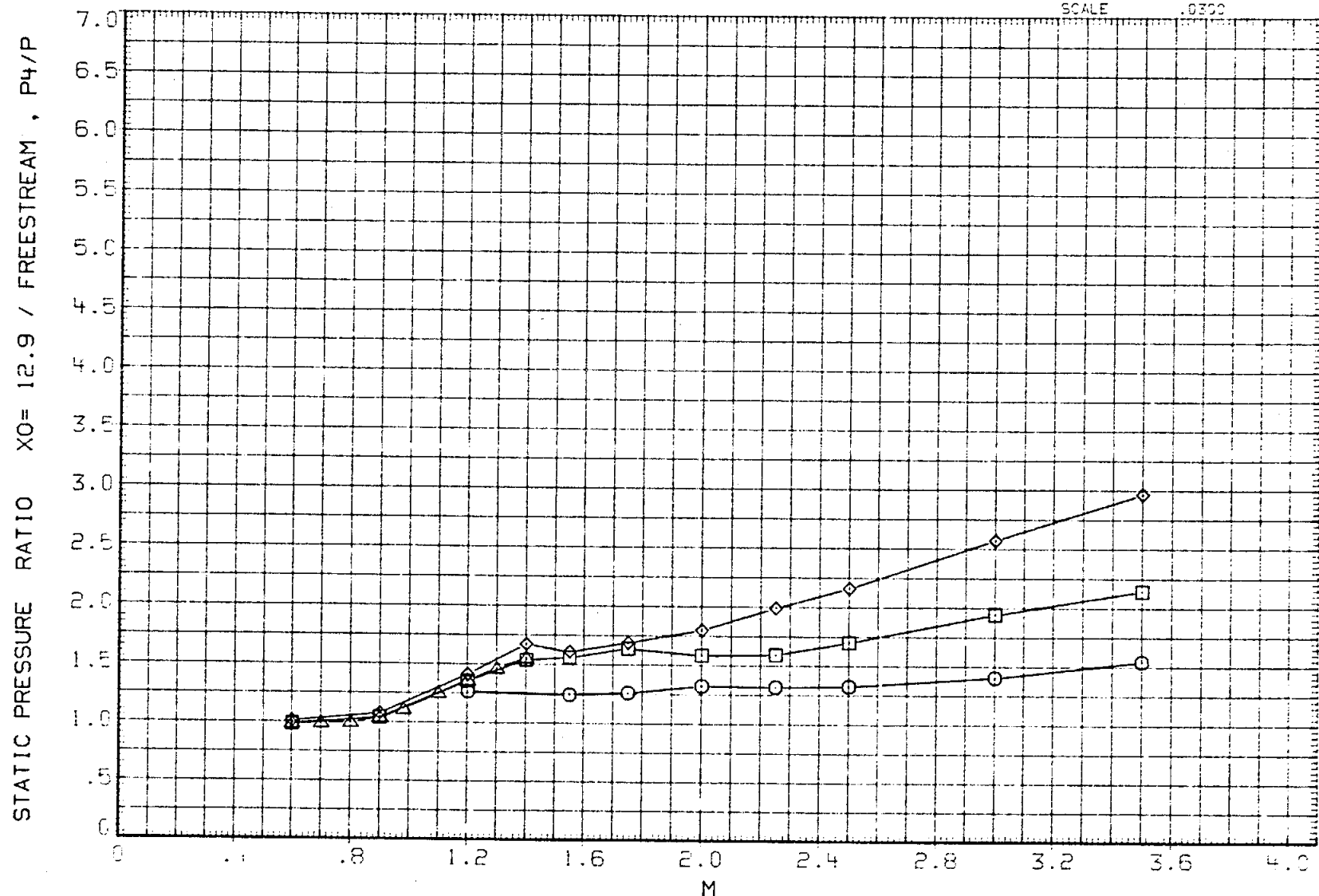


FIG. 24 EFFECT OF BETA ON STATIC PRESSURE RATIO PSJ/P RIGHT RAKE

(C) ALPHA = 12.00

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILERON

BODY LIFT

REFERENCE INFORMATION

AE7803 ○ ARC 11-97-87-094 CA161 ORBITER + RAKES  
 AE7805 □ ARC 11-97-87-094 CA161 ORBITER + RAKES  
 AE7807 ◇ ARC 11-97-87-094 CA161 ORBITER + RAKES  
 AE7801 △ DATA NOT AVAILABLE

-5.000 .000 .000 -7.170  
 .000 .000 .000 -7.170  
 5.000 .000 .000 -7.170  
 .000 .000 .000 -7.170

SRFF 2690.0000 SQ.FT.  
 LH01 474.0000 IN.  
 SRFF 936.6800 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .03500

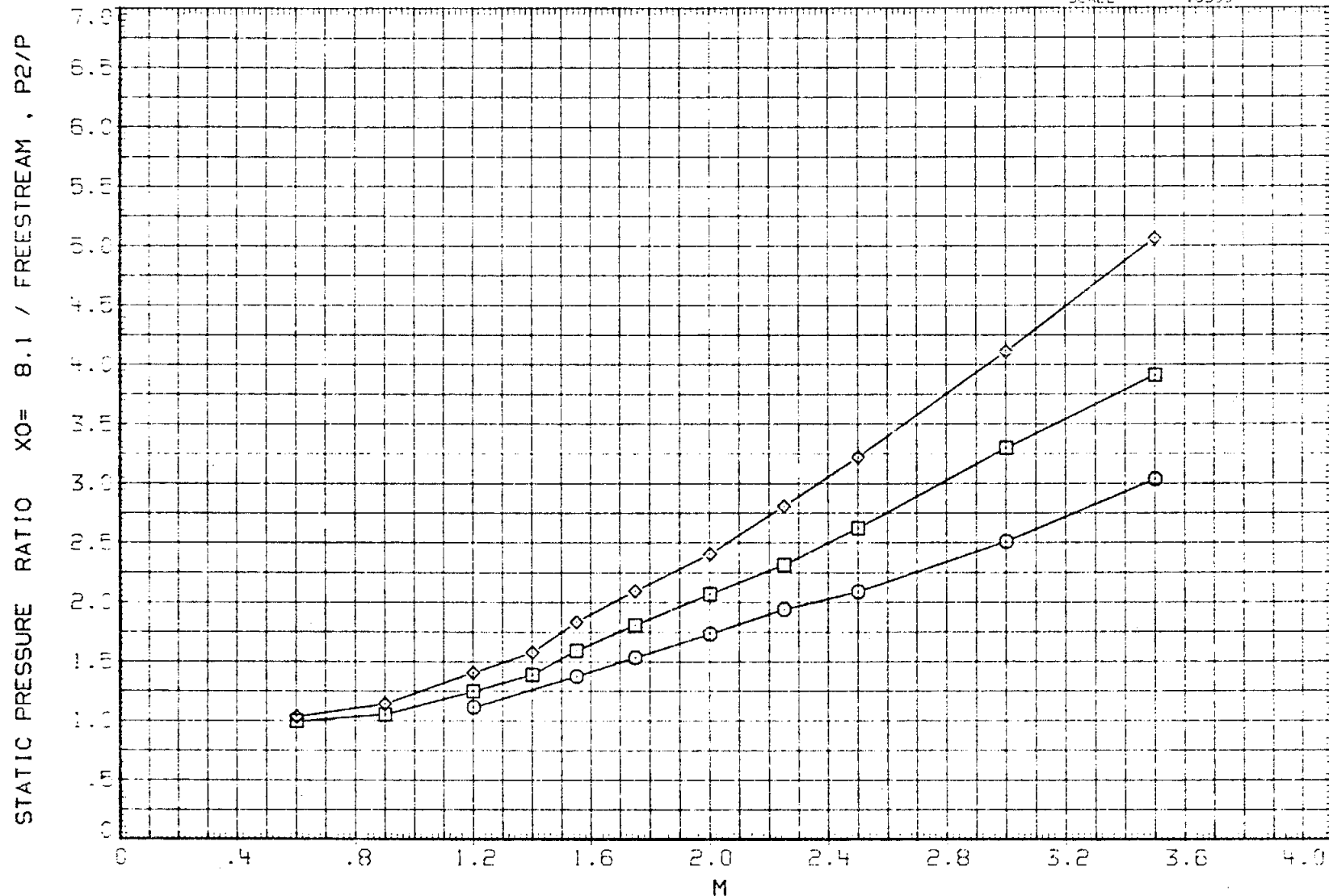


FIG. 24 EFFECT OF BETA ON STATIC PRESSURE RATIO PSJ/P RIGHT RAKE

(D) ALPHA = 18.00

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DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	HDFLAP	REFERENCE INFORMATION		
AE7803	○	ARC 11-97-87-094 CA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2590.0000	50.FT.
AE7805	□	ARC 11-97-87-094 CA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
AE7807	◇	ARC 11-97-87-094 CA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
AE7801	△	DATA NOT AVAILABLE	.000			-7.170	XMRP	1076.6800	IN. X0
							YMRP	.0000	IN. Y0
							ZMRP	375.0000	IN. Z0
							SCALE	.0300	

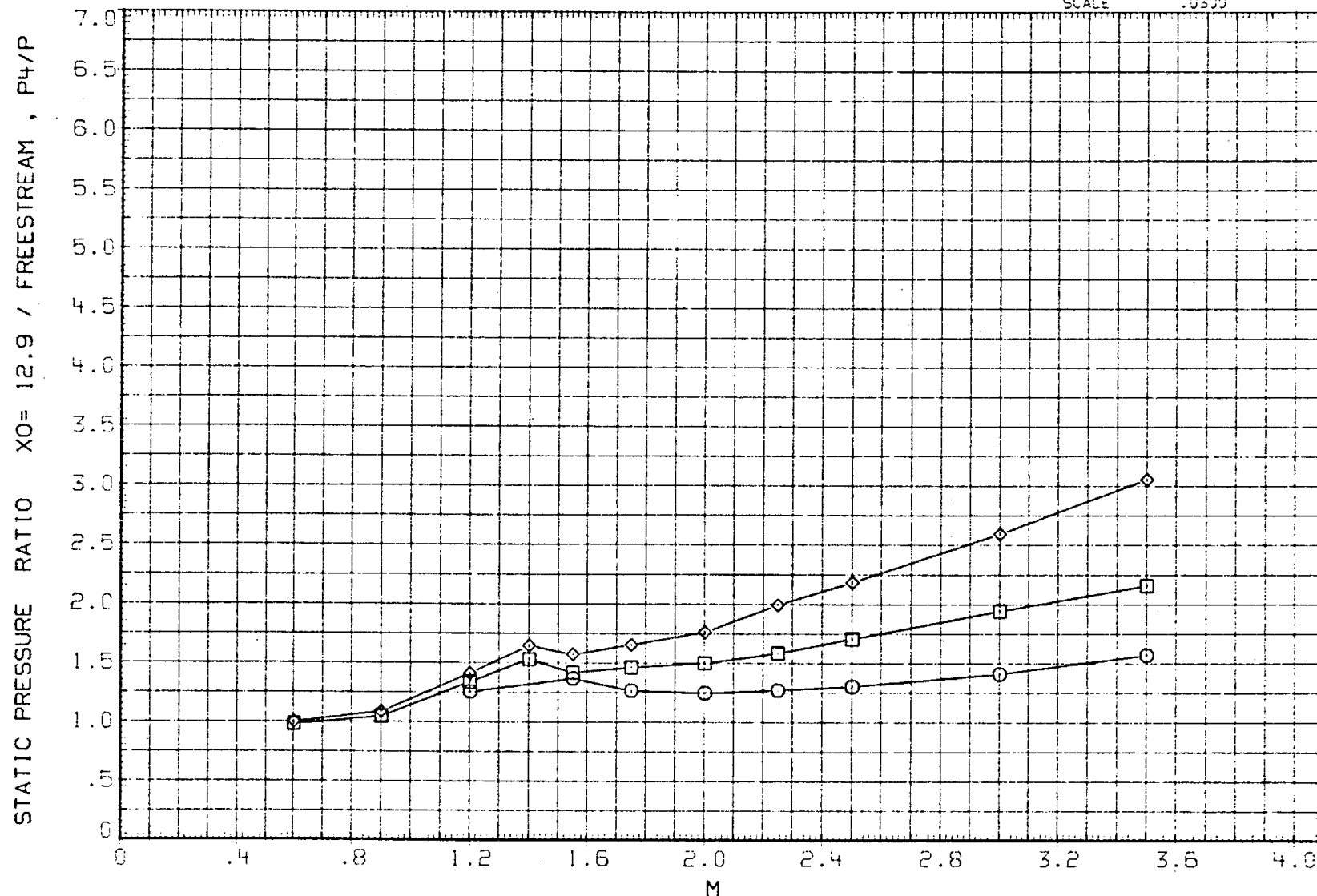


FIG. 24 EFFECT OF BETA ON STATIC PRESSURE RATIO PSJ/P RIGHT RAKE

DATA SET SYMBOL	CONFIGURATION	BETA	ELE ON	ATLRON	BUFLA	REFERENCE INFORMATION		
AE7806	ARC 11-97-87-094 OA161 ORBITER * RAKES	-5.000	.000	.000	-7.170	SRVF	2690.0000	SQ.FP
AE7808	ARC 11-97-87-094 OA161 ORBITER * RAKES	.000	.000	.000	-7.170	SRVF	474.0000	IN.
AE7807	ARC 11-97-87-094 OA161 ORBITER * RAKES	5.000	.000	.000	-7.170	SRVF	936.6000	IN.
AE7801	ARC 11-97-87-094 OA161 ORBITER - WING * RAKES	.000	.000	.000	-7.170	XMAP	1076.6000	IN. X0
						XMAP	.0000	IN. Y0
						XMAP	375.0000	IN. Z0
						SCALE	.0300	

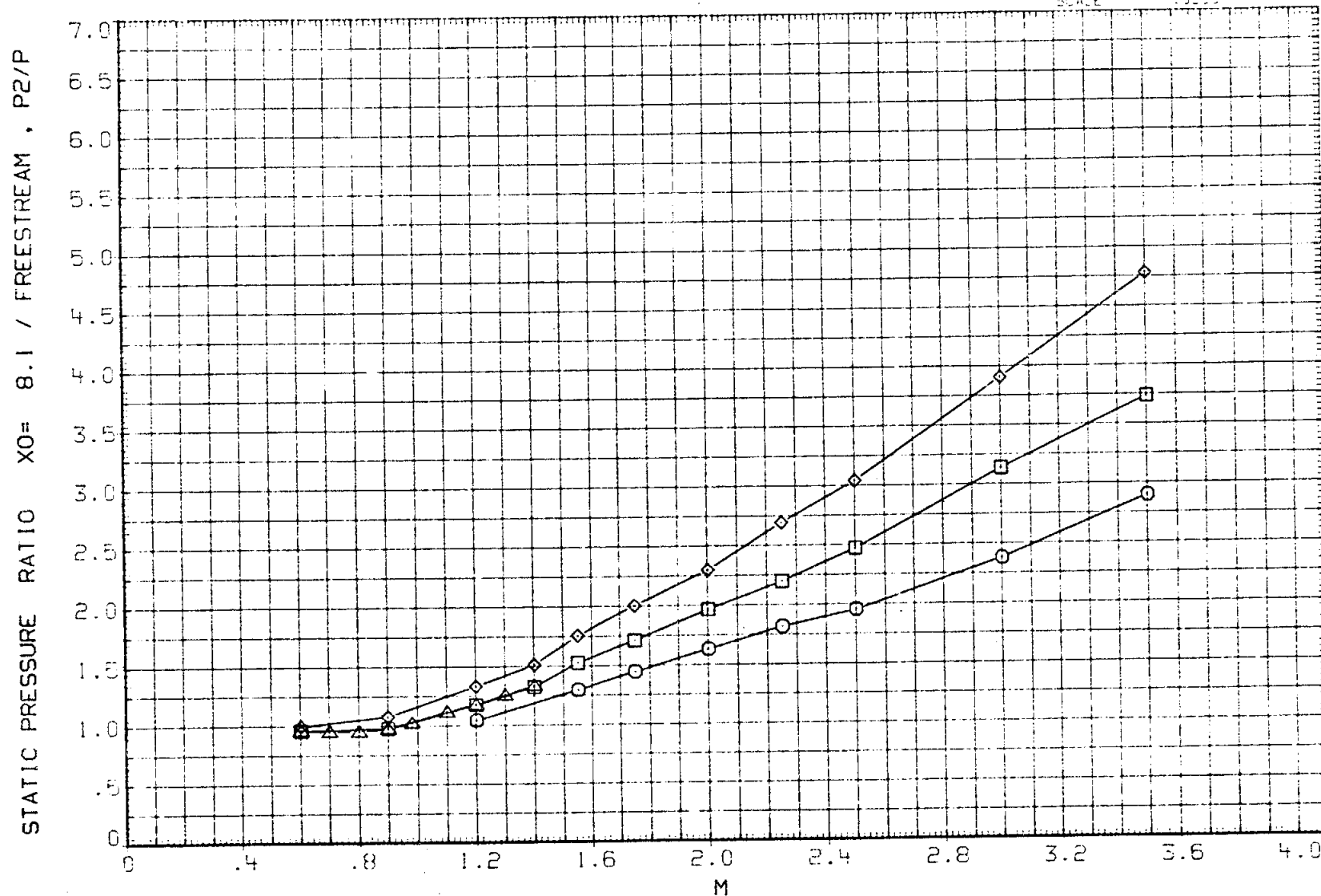


FIG. 24 EFFECT OF BETA ON STATIC PRESSURE RATIO PSJ/P RIGHT RAKE

(E) ALPHA = 24.00



DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
AETB03	○	ARC 11-97-87-094 04161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
AETB05	□	ARC 11-97-87-094 04161 ORBITER + RAKLS	.000	.000	.000	-7.170	LREF	474.8000	IN.
AETB07	◇	ARC 11-97-87-094 04161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
AETB01	△	ARC 11-97-87-094 04161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	XMRP	1076.6800	IN. XO
							YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0300	

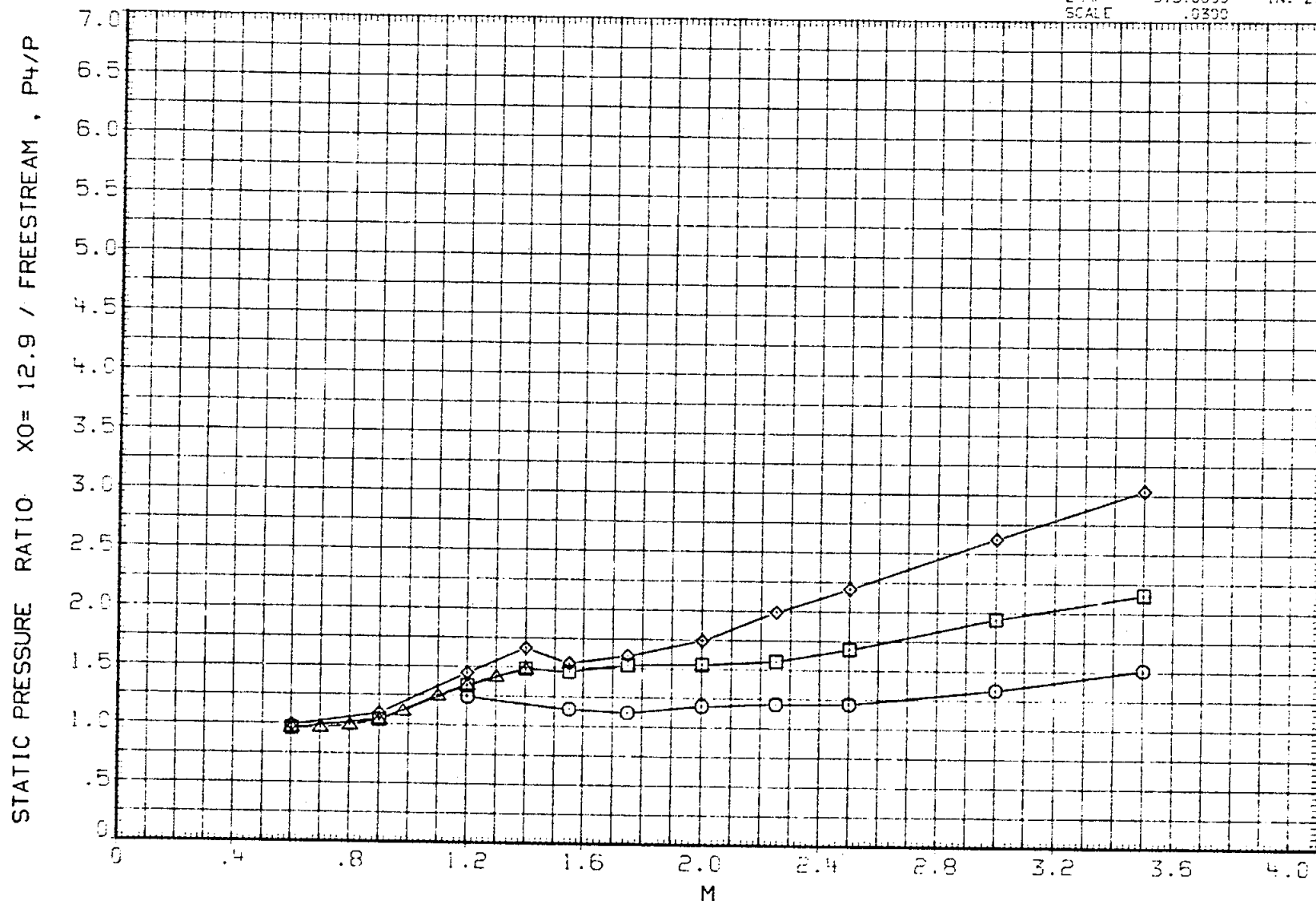


FIG. 24 EFFECT OF BETA ON STATIC PRESSURE RATIO PSJ/P RIGHT RAKE

(E) ALPHA = 24.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	CDREF	REFERENCE INFORMATION		
BT7800	○	ARC 11-97-87-094 GA161 ORBITER * RAKES	-5.000	.000	.000	-7.170	SREF	2600.0000	SQ.FT.
BT7805	□	ARC 11-97-87-094 GA161 ORBITER * RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
BT7807	◇	ARC 11-97-87-094 GA161 ORBITER * RAKES	5.000	.000	.000	-7.170	BREF	938.6800	IN.
BT7801	△	ARC 11-97-87-094 GA161 ORBITER * WING * RAKES	.000	.000	.000	-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

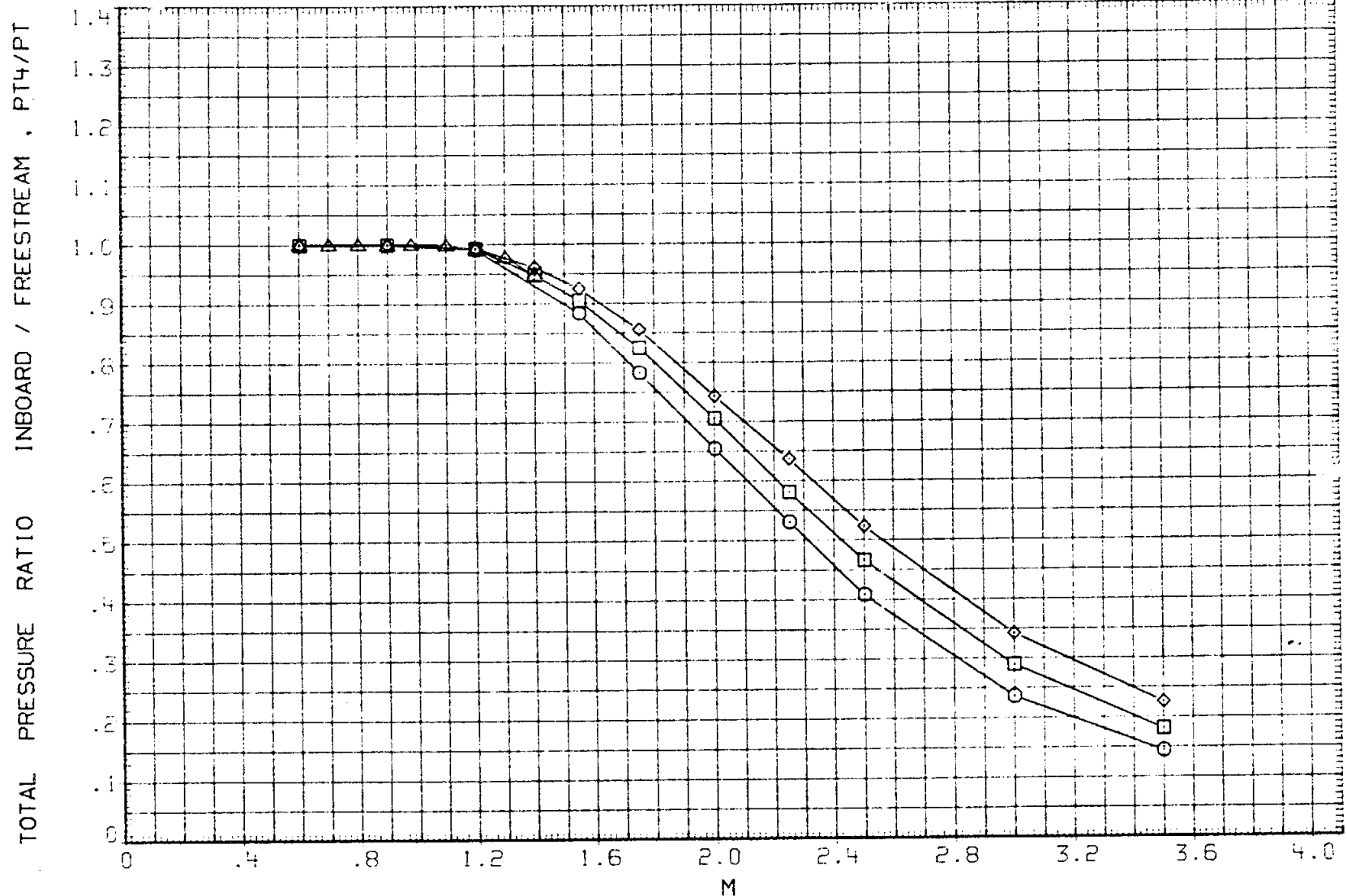


FIG. 25 EFFECT OF BETA ON TOTAL PRESSURE RATIO PTI/PT RIGHT RAKE

(A) ALPHA = .00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
BET803	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
BET805	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
BET807	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
BET801	△	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000			-7.170	XMRP	1076.6800	IN. X0
							YMRP	.0000	IN. Y0
							ZMRP	375.0000	IN. Z0
							SCALE	.0300	

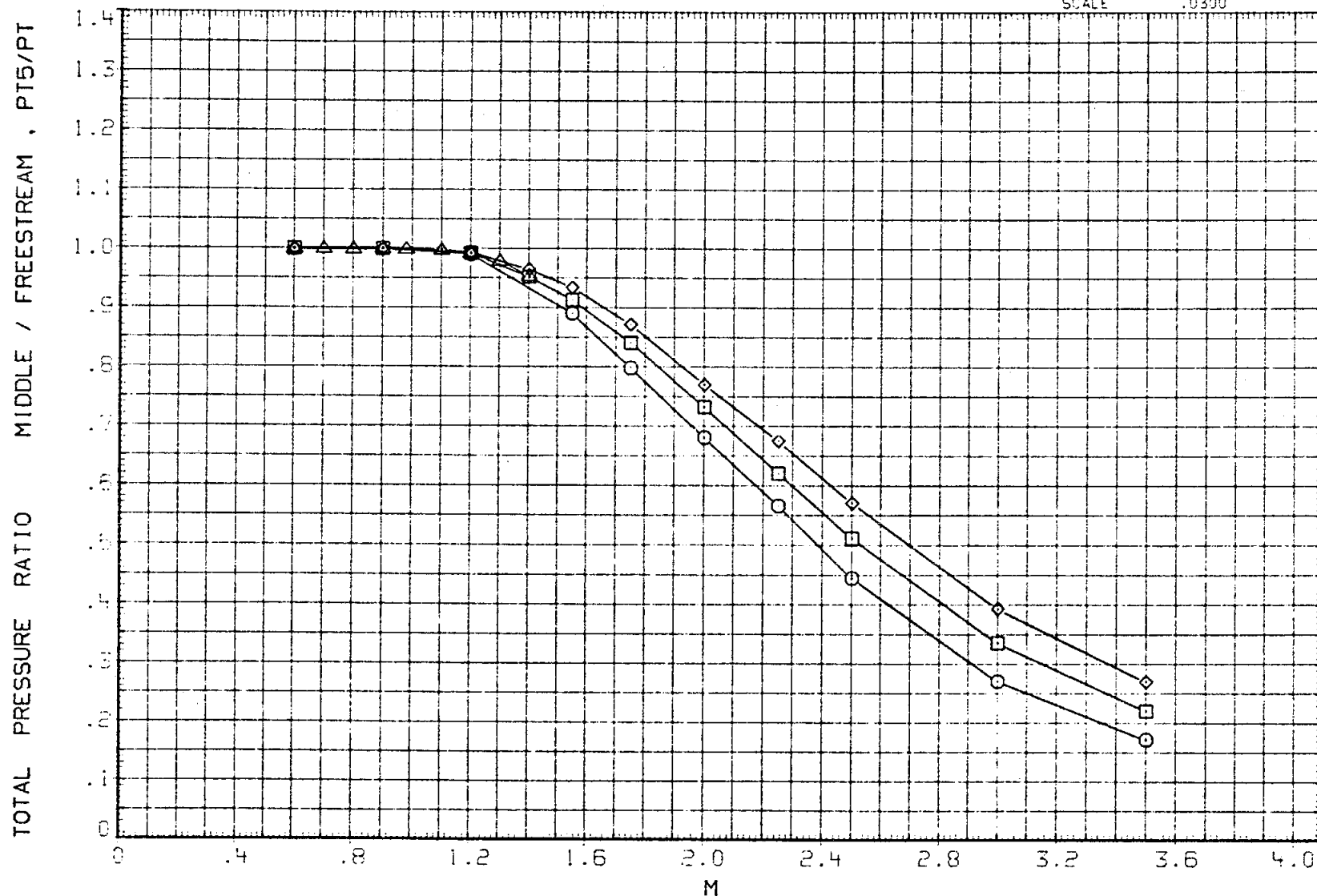


FIG. 25 EFFECT OF BETA ON TOTAL PRESSURE RATIO PT1/PT RIGHT RAKE

(A) ALPHA = .00

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

EDFLAP

REFERENCE INFORMATION

REF	2690.0000	SG. FT.
REF	474.0000	IN.
REF	935.6800	IN.
YREF	1076.6800	IN. X0
YREF	1.0000	IN. Y0
ZREF	375.0000	IN. Z0
SCALE	0.0000	

BE7803	○	ARC 11-97-87-094	CA161	ORBITER + RAKES	5.000	.000	.000	-7.170
BE7805	□	ARC 11-97-87-094	CA161	ORBITER + RAKES	.000	.000	.000	-7.170
BE7807	◇	ARC 11-97-87-094	CA161	ORBITER + RAKES	5.000	.000	.000	-7.170
BE7801	△	ARC 11-97-87-094	CA161	ORBITER - WING + RAKES	.000			

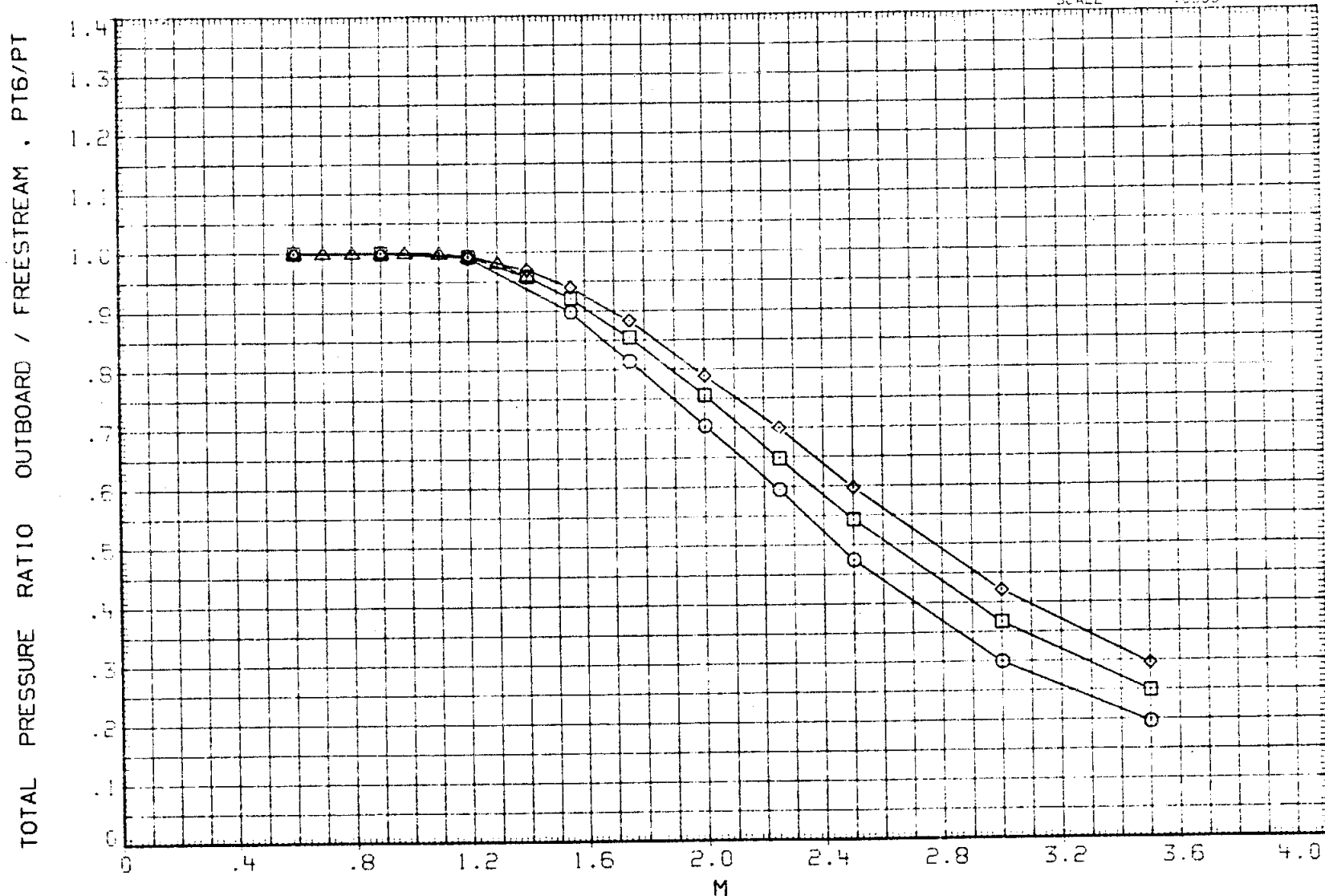


FIG. 25 EFFECT OF BETA ON TOTAL PRESSURE RATIO PT1/PT RIGHT RAKE

(A) ALPHA = .00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
BET803	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50.FT.
BET805	□	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.0000	IN.
BET807	◇	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
BET801	△	DATA NOT AVAILABLE	.000			-7.170	XMRP	1076.6800	IN. X0
							YMRP	.0000	IN. Y0
							ZMRP	375.0000	IN. Z0
							SCALE	.0000	

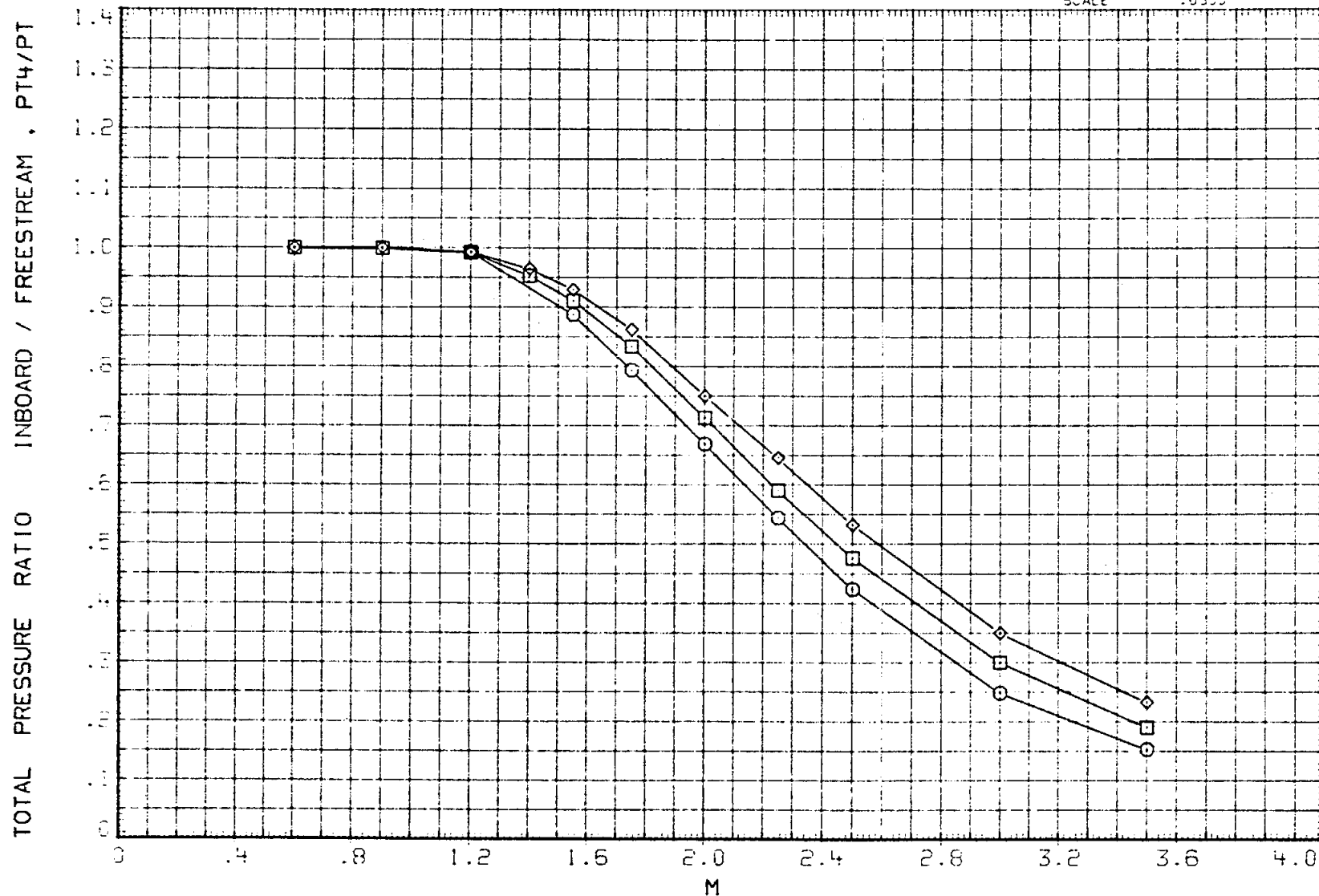


FIG. 25 EFFECT OF BETA ON TOTAL PRESSURE RATIO PTI/PT RIGHT RAKE

DATA SET SYMBOL

CONFIGURATION

BETA

CLEVON

AILRON

BOPLAT

REFERENCE INFORMATION

BE7803 ○ ARC 11-97-87-084 OA161 ORBITER + RAKES  
 BE7805 □ ARC 11-97-87-084 OA161 ORBITER + RAKES  
 BE7807 ◇ ARC 11-97-87-094 OA161 ORBITER + RAKES  
 BE7801 △ DATA NOT AVAILABLE

-5.000 .000 .000 -7.170  
 .000 .000 .000 -7.170  
 5.000 .000 .000 -7.170  
 .000

SREF 2690.0000 SQ.FT.  
 LREF 470.8000 IN.  
 BREF 938.6800 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .2500

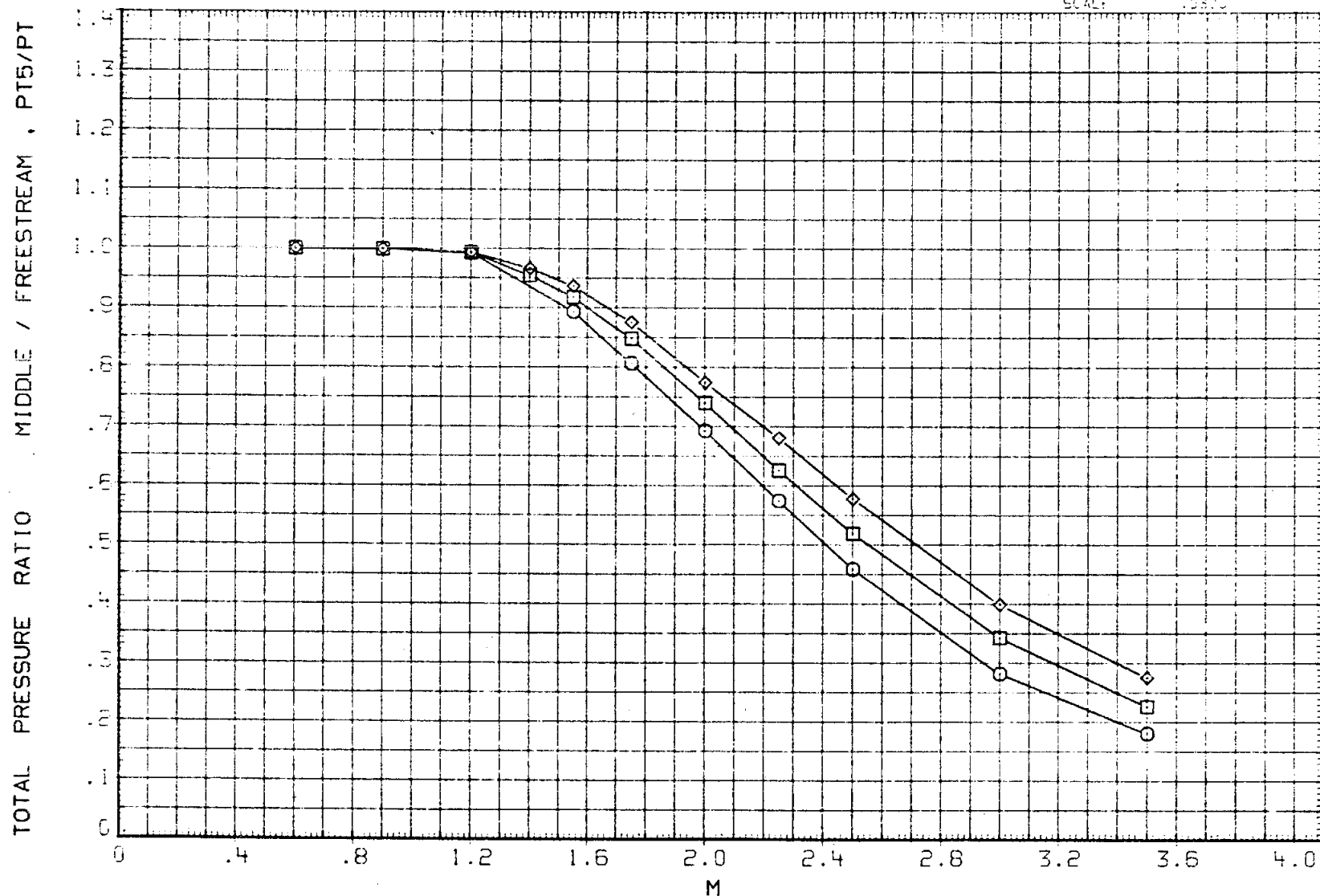


FIG. 25 EFFECT OF BETA ON TOTAL PRESSURE RATIO PTI/PT RIGHT RAKE

(B) ALPHA = 6.00

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DATA SET SYMBOL

ARC 11-97-87-094  
ARC 11-97-87-094  
ARC 11-97-87-094  
ARC 11-97-87-094

○  
□  
◇  
△

CONFIGURATION

ARC 11-97-87-094 0A161 ORBITER + RAKES  
ARC 11-97-87-094 0A161 ORBITER + RAKES  
ARC 11-97-87-094 0A161 ORBITER + RAKES  
DATA NOT AVAILABLE

BETA

-5.000  
.000  
.000  
5.000  
.000

ELEVON

.000  
.000  
.000  
.000  
.000

AILRON

.000  
.000  
.000  
.000  
.000

BDFLAP

-7.170  
-7.170  
-7.170  
-7.170  
-7.170

REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

TOTAL PRESSURE RATIO OUTBOARD / FREESTREAM, PT6/PT

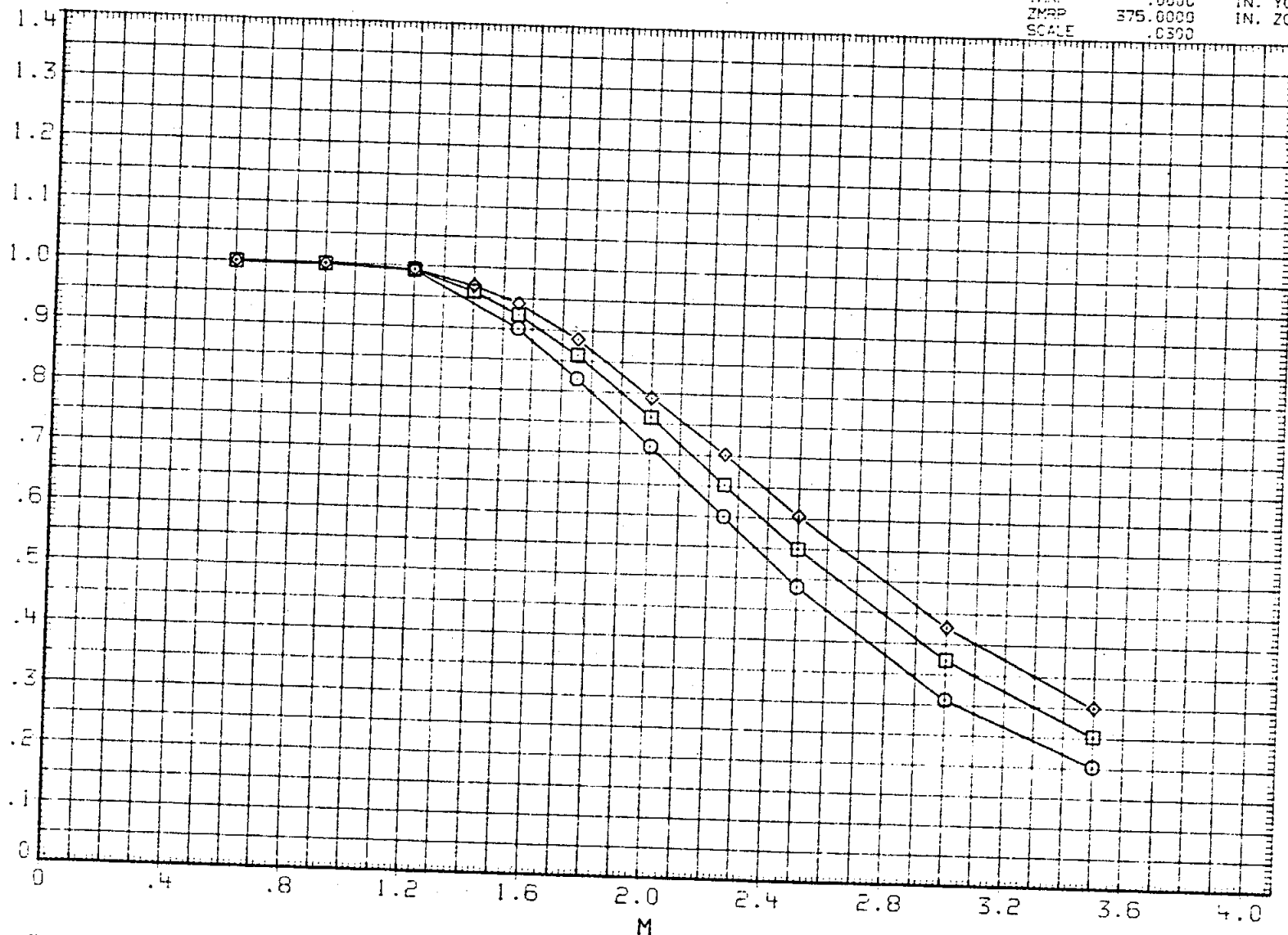


FIG. 25 EFFECT OF BETA

ON TOTAL PRESSURE RATIO PT1/PT RIGHT RAKE

(B) ALPHA = 6.00

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BOPLAT

REFERENCE INFORMATION

BE7803

○

ARC 11-97-87-094 OA161 ORBITER + RAKES

-5.000

.000

.000

-7.170

CREF 2690.0000 50.000

BE7805

□

ARC 11-97-87-094 OA161 ORBITER + RAKES

.000

.000

.000

-7.170

LREF 474.8000 IN.

BE7807

◇

ARC 11-97-87-094 OA161 ORBITER + RAKES

5.000

.000

.000

-7.170

BREF 935.0000 IN.

BE7801

△

ARC 11-97-87-094 OA161 ORBITER + WING + RAKES

.000

-7.170

XMRP 1076.6000 IN. X0

YMRP .0000 IN. Y0

ZMRP 375.0000 IN. Z0

SCALE .0000

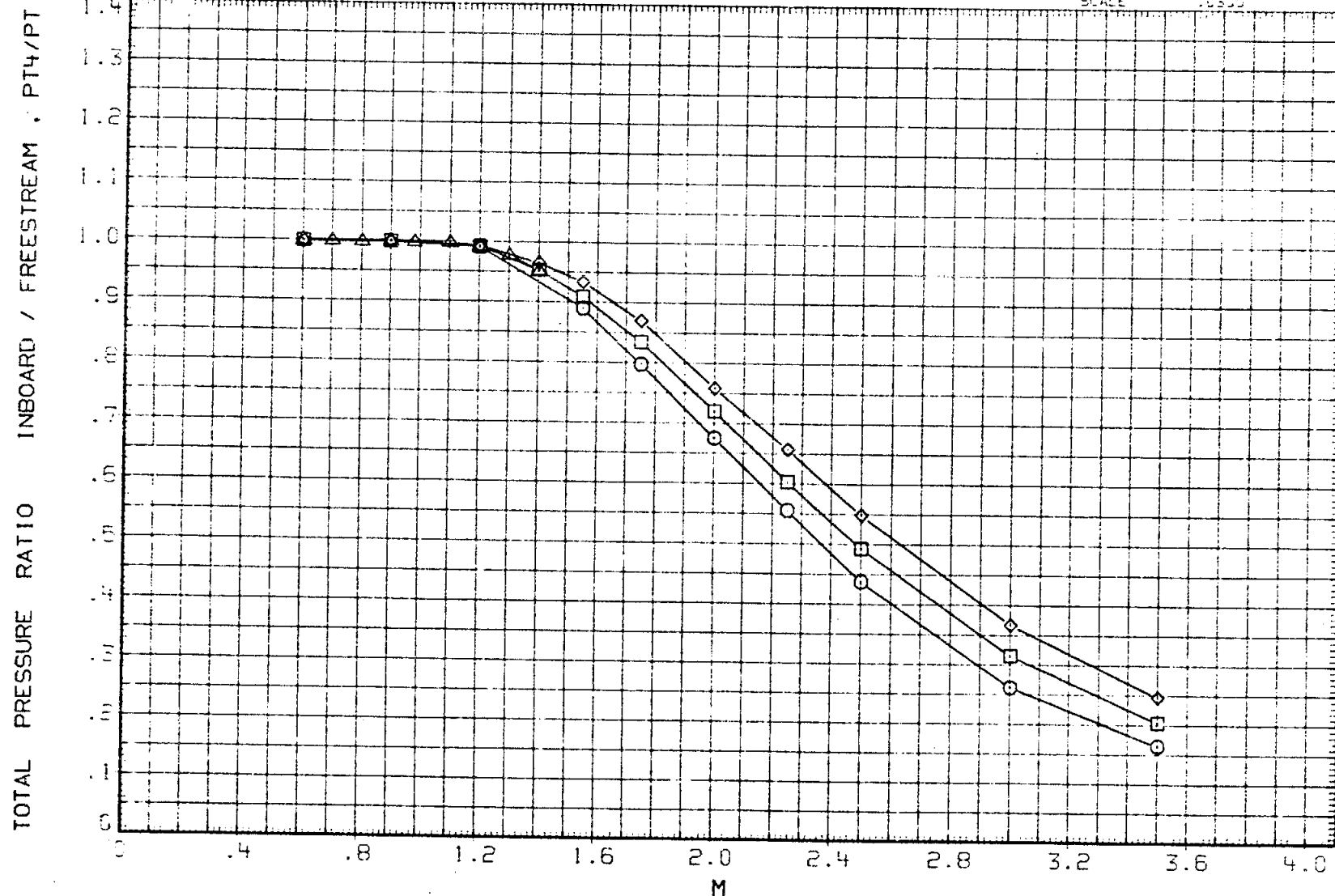


FIG. 25 EFFECT OF BETA ON TOTAL PRESSURE RATIO PTI/PT RIGHT RAKE

(C) ALPHA = 12.00



DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
BET803	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	50. FT.
BET805	◇	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	LREF	474.8000	IN.
BET807	□	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	BREF	936.6800	IN.
BET801	△	ARC 11-97-87-094 0A161 ORBITER - WING + RAKES	.000	.000	.000	-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

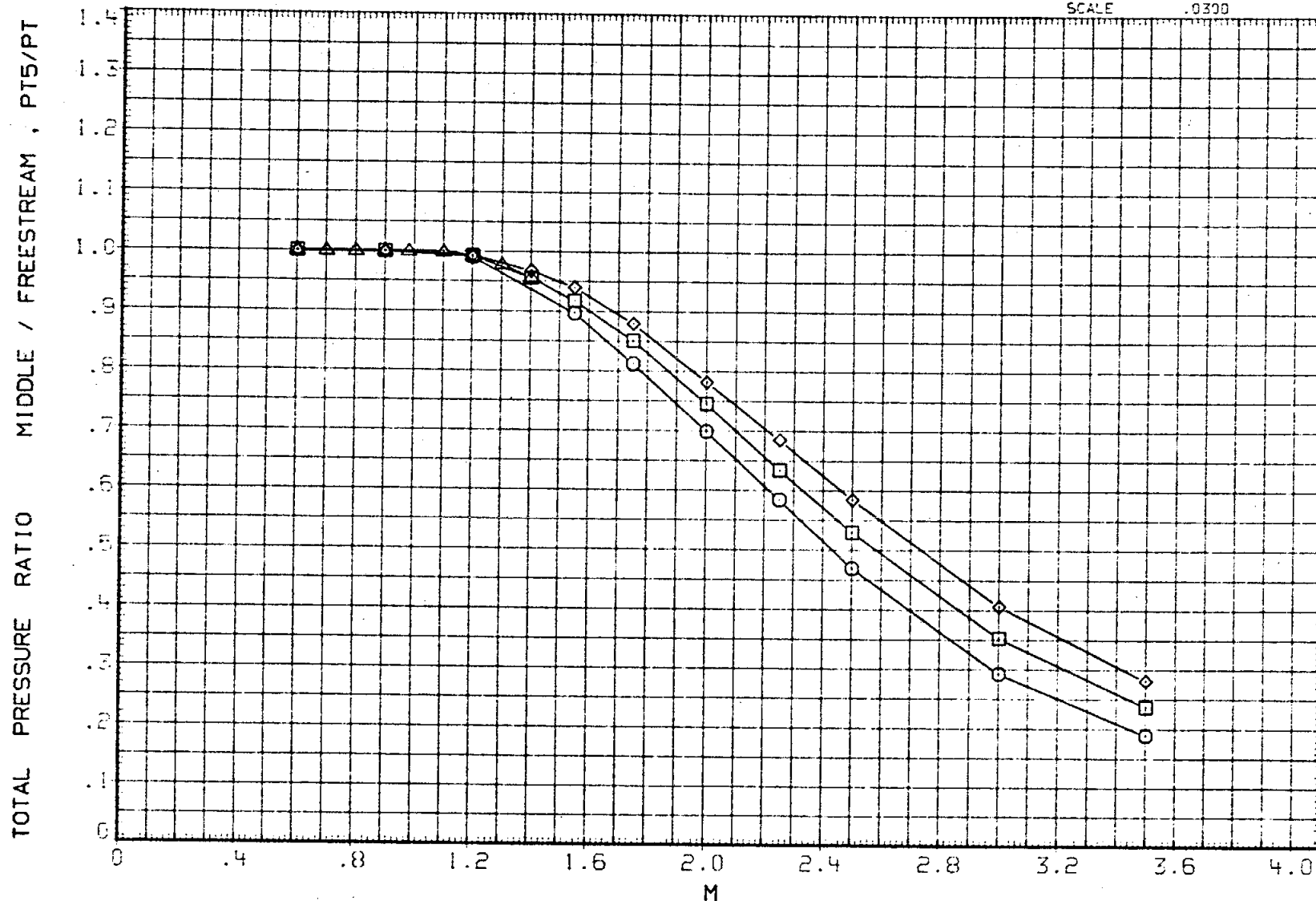


FIG. 25 EFFECT OF BETA ON TOTAL PRESSURE RATIO PTI/PT RIGHT RAKE

(C) ALPHA = 12.00

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

ROFLAP

REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	ROFLAP
BE7803	ARC 11-97-87-094 OA161 ORBITER * RAKES	-5.000	.000	.000	-7.170
BE7806	ARC 11-97-87-094 OA161 ORBITER * RAKES	.000	.000	.000	-7.170
BE7807	ARC 11-97-87-094 OA161 ORBITER * RAKES	5.000	.000	.000	-7.170
BE7801	ARC 11-97-87-094 OA161 ORBITER - WING * RAKES	.000			

REFERENCE INFORMATION	VALUE	UNIT
SREF	2690.0000	SO.FT
CSREF	474.0000	IN.
BSREF	935.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0200	

TOTAL PRESSURE RATIO OUTBOARD / FREESTREAM , PT6/PT

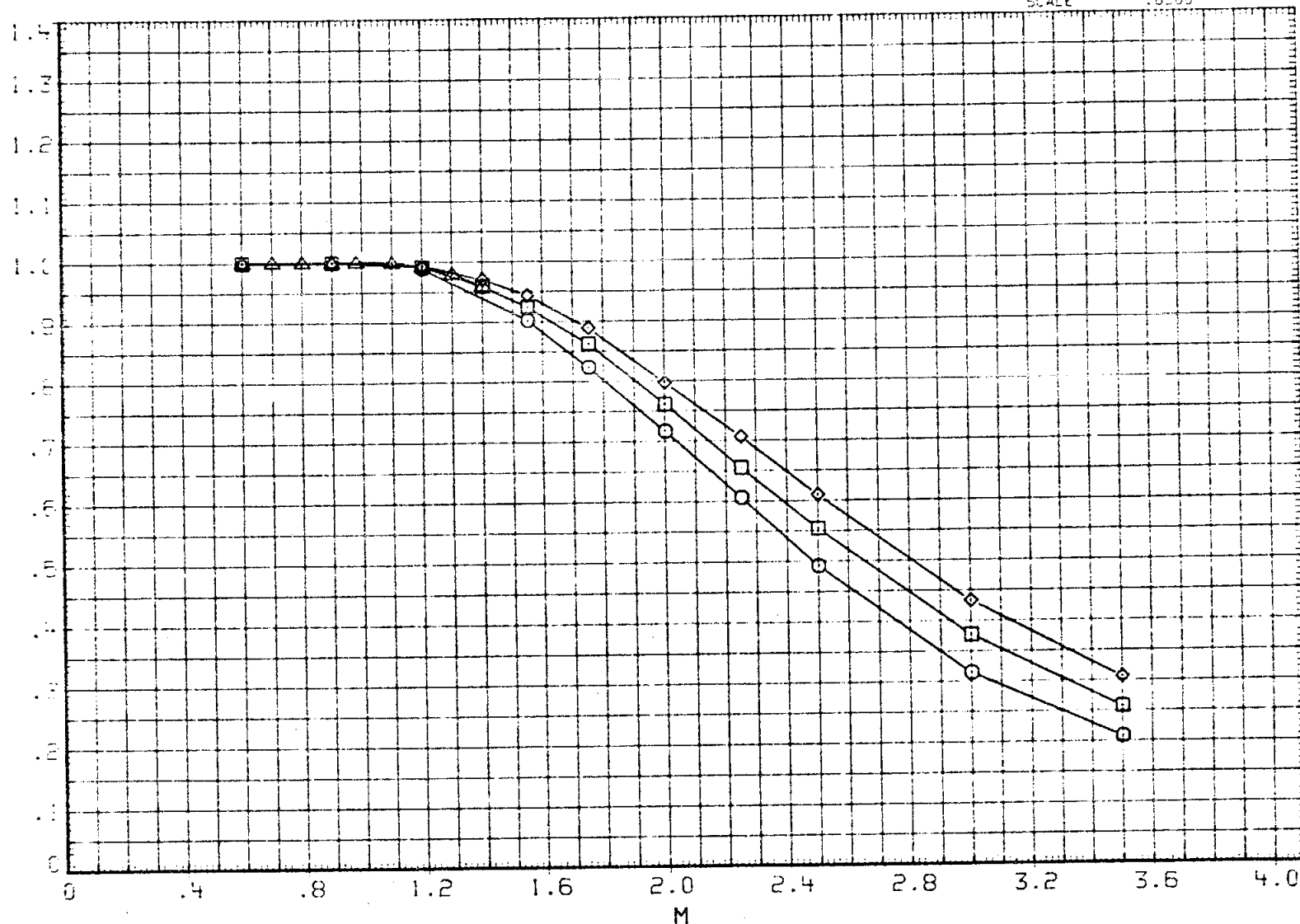


FIG. 25 EFFECT OF BETA ON TOTAL PRESSURE RATIO PT1/PT RIGHT RAKE

(C) ALPHA = 12.00

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DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BDFLAP

REFERENCE INFORMATION

BE7803     $\square$     ARC 11-97-87-094 OA161 ORBITER + RAKES  
 BE7805     $\square$     ARC 11-97-87-094 OA161 ORBITER + RAKES  
 BE7807     $\diamond$     ARC 11-97-87-094 OA161 ORBITER + RAKES  
 BE7801     $\triangle$     DATA NOT AVAILABLE

-5.000  
 .000  
 5.000  
 .000

.000  
 .000  
 .000

.000  
 .000  
 .000

-7.170  
 -7.170  
 -7.170  
 -7.170

SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

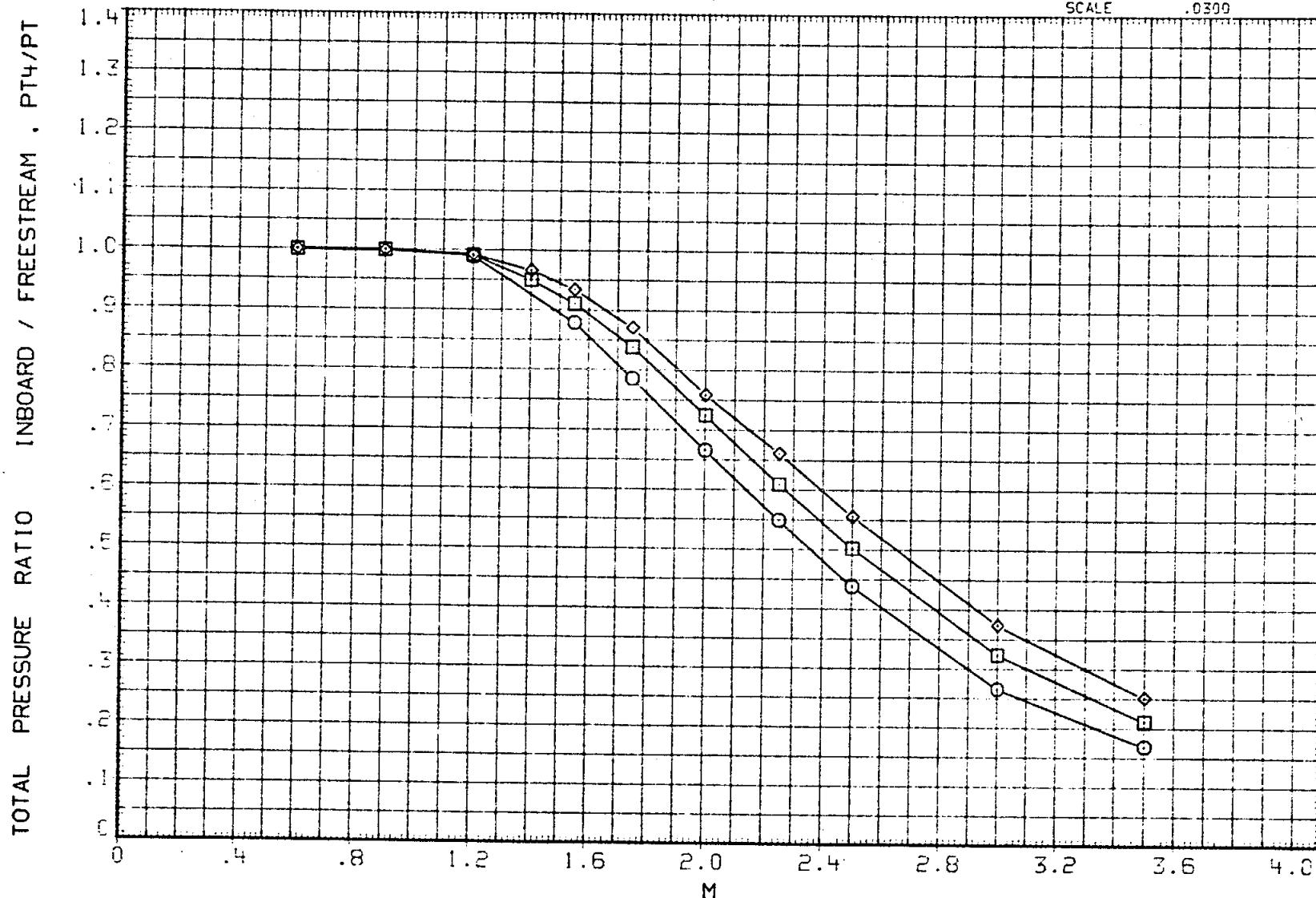


FIG. 25 EFFECT OF BETA ON TOTAL PRESSURE RATIO PTI/PT RIGHT RAKE

(D) ALPHA = 18.00

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILERON

BDFLAP

REFERENCE INFORMATION

BE7803 ○ ARC 11-97-87-034 OA161 ORBITER \* RAKES  
 BE7805 ○ ARC 11-97-87-034 OA161 ORBITER \* RAKES  
 BE7807 ◇ ARC 11-97-87-034 OA161 ORBITER \* RAKES  
 BE7801 △ DATA NOT AVAILABLE

-5.000 .000 .000 -7.170  
 .000 .000 .000 -7.170  
 5.000 .000 .000 -7.170  
 .000

ORFF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMPP 1076.6800 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 575.0000 IN. Z0  
 SCALE .0000

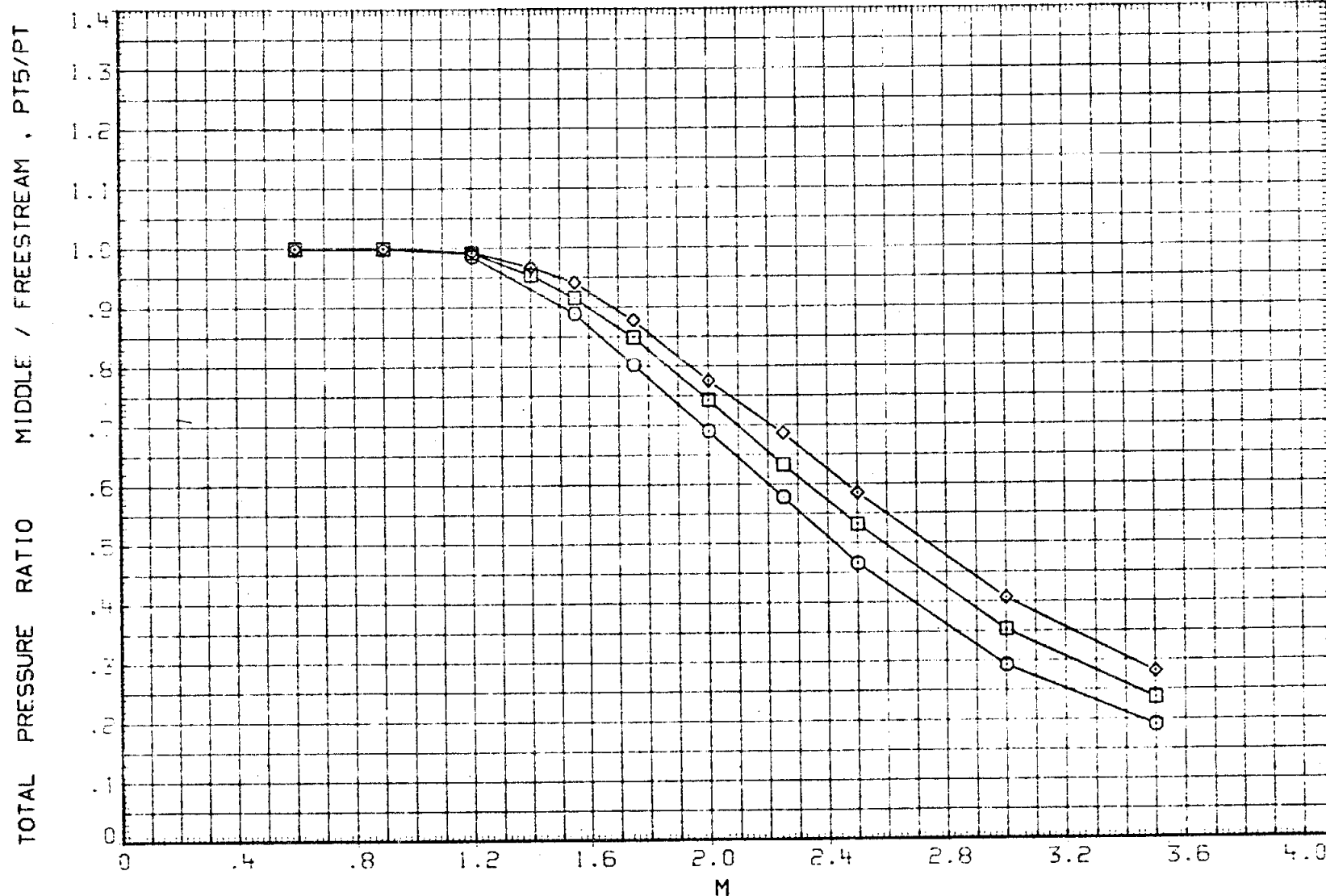


FIG. 25 EFFECT OF BETA ON TOTAL PRESSURE RATIO PT1/PT RIGHT RAKE

(D) ALPHA = 18.00

PAGE 510

## DATA SET SYMBOL

## CONFIGURATION

BETA	ELEVON	AILRON	BDFLAP
-5.000	.000	.000	-7.170
.000	.000	.000	-7.170
5.000	.000	.000	-7.170
.000			

## REFERENCE INFORMATION

SREF	2590.0000	SQ.FT.
LREF	474.8000	IN.
BREF	935.6000	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

RC7803	○	ARC 11-97-87-094 0A161 ORBITER + RAKES
RC7805	□	ARC 11-97-87-094 0A161 ORBITER + RAKES
RC7807	◇	ARC 11-97-87-094 0A161 ORBITER + RAKES
RC7801	△	DATA NOT AVAILABLE

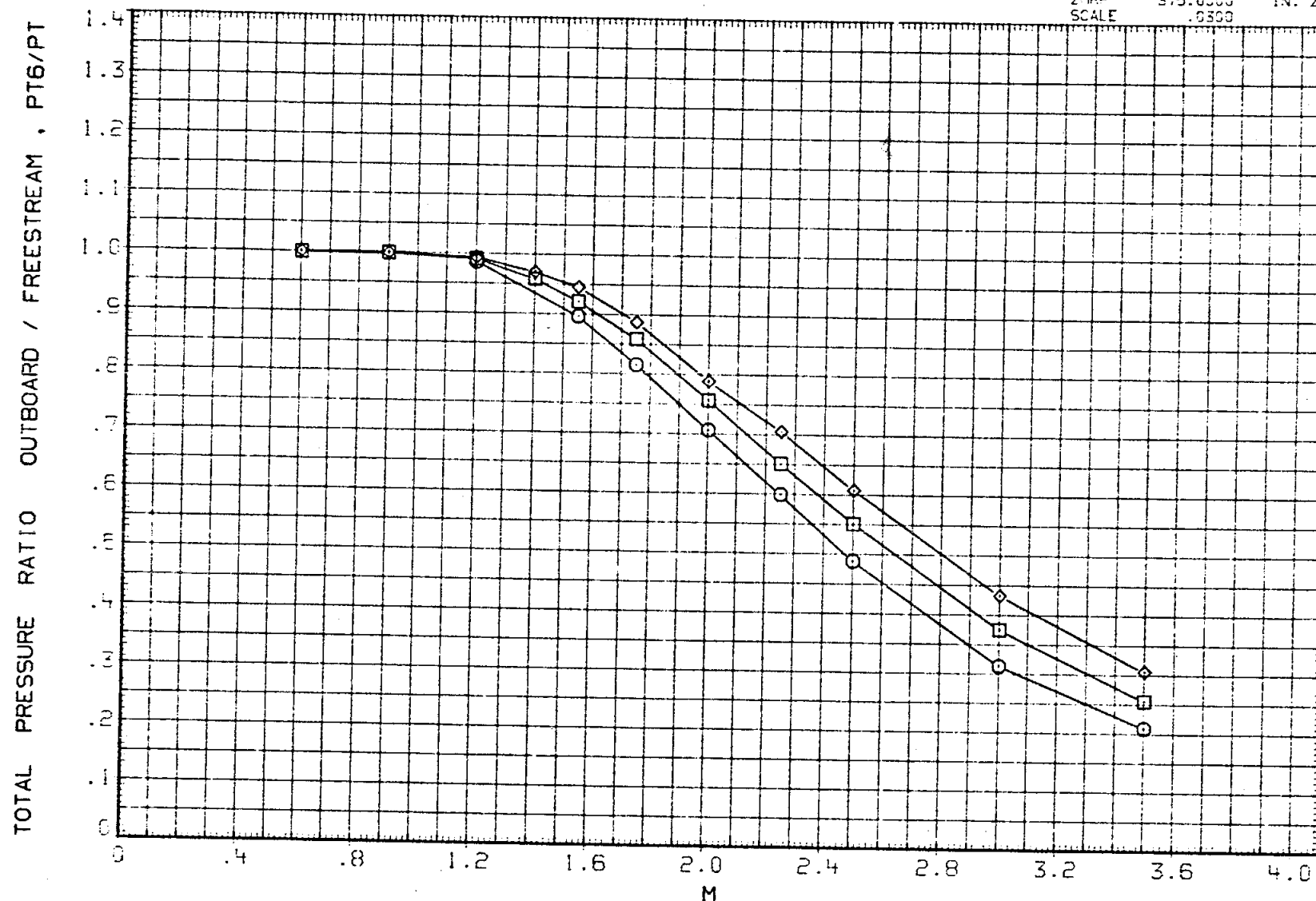


FIG. 25 EFFECT OF BETA ON TOTAL PRESSURE RATIO PT1/PT RIGHT RAKE

(D) ALPHA = 18.00

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BODY IT

REFERENCE INFORMATION

BE7803 ○ ARC 11-97-87-094 04161 ORBITER + RAKES  
 BE7805 □ ARC 11-97-87-094 04161 ORBITER + RAKES  
 BE7807 ◇ ARC 11-97-87-094 04161 ORBITER + RAKES  
 BE7801 △ ARC 11-97-87-094 04161 ORBITER + WING + RAKES

-5.000 .000 .000 -7.170  
 .000 .000 .000 -7.170  
 5.000 .000 .000 -7.170  
 .000 .000 .000 -7.170

SREF 2680.0000 SQ. FT.  
 LREF 474.8000 IN.  
 SREF 936.6000 IN.  
 XMRP 1076.6000 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

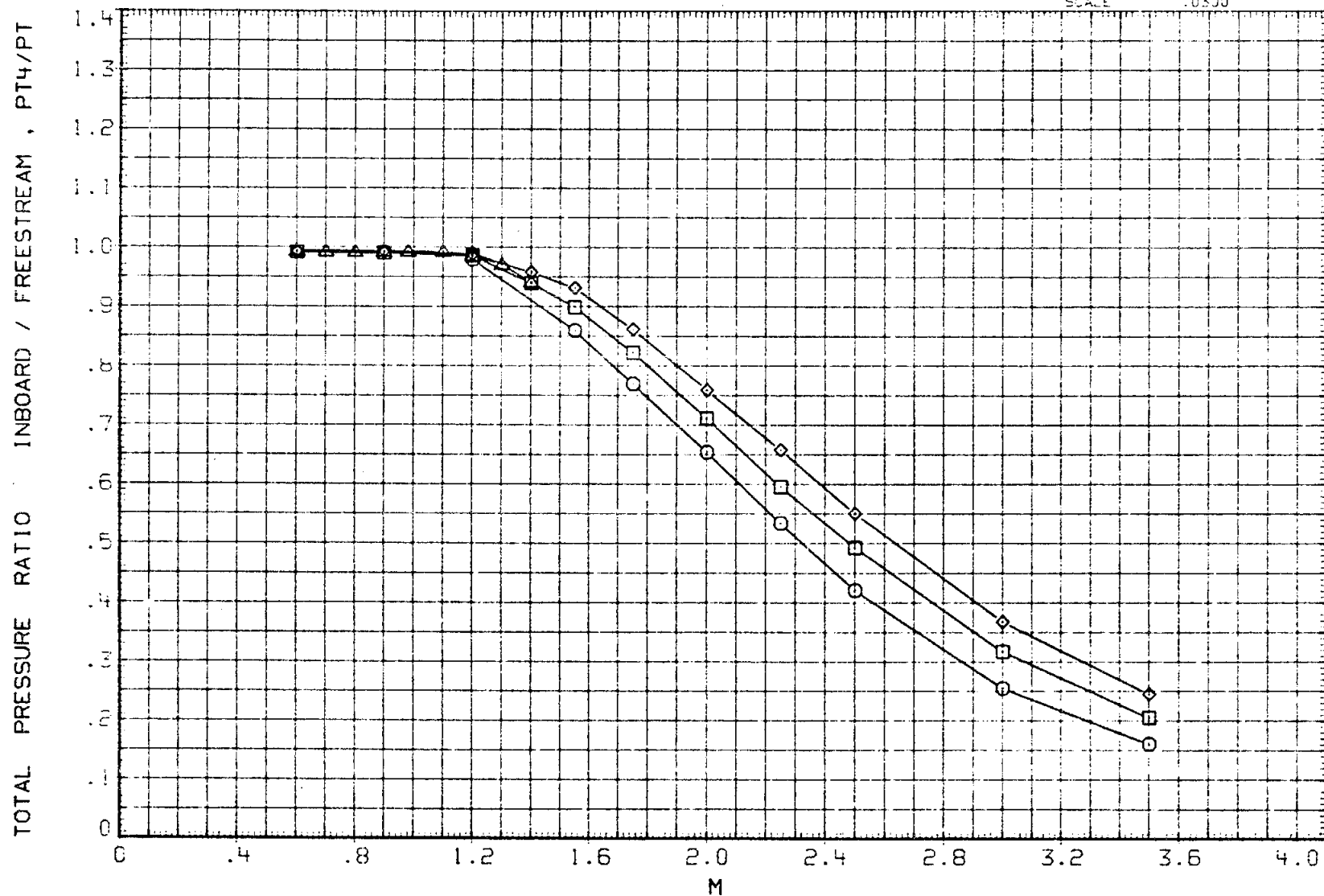


FIG. 25 EFFECT OF BETA ON TOTAL PRESSURE RATIO PTI/PT RIGHT RAKE

(E) ALPHA = 24.00

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# DATA SET SYMBOL

W7803	○	ARC 11-97-87-094	0A161 ORBITER + RAKES
W7805	□	ARC 11-97-87-094	0A161 ORBITER + RAKES
W7807	◇	ARC 11-97-87-094	0A161 ORBITER + RAKES
W7801	△	ARC 11-97-87-094	0A161 ORBITER - WING + RAKES

BETA	ELEVON	AILRON	BDFLAP
-5.000	.000	.000	-7.170
.000	.000	.000	-7.170
5.000	.000	.000	-7.170
.000			

## REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	935.5000	IN.
XMPP	1076.6800	IN. XO
YMP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

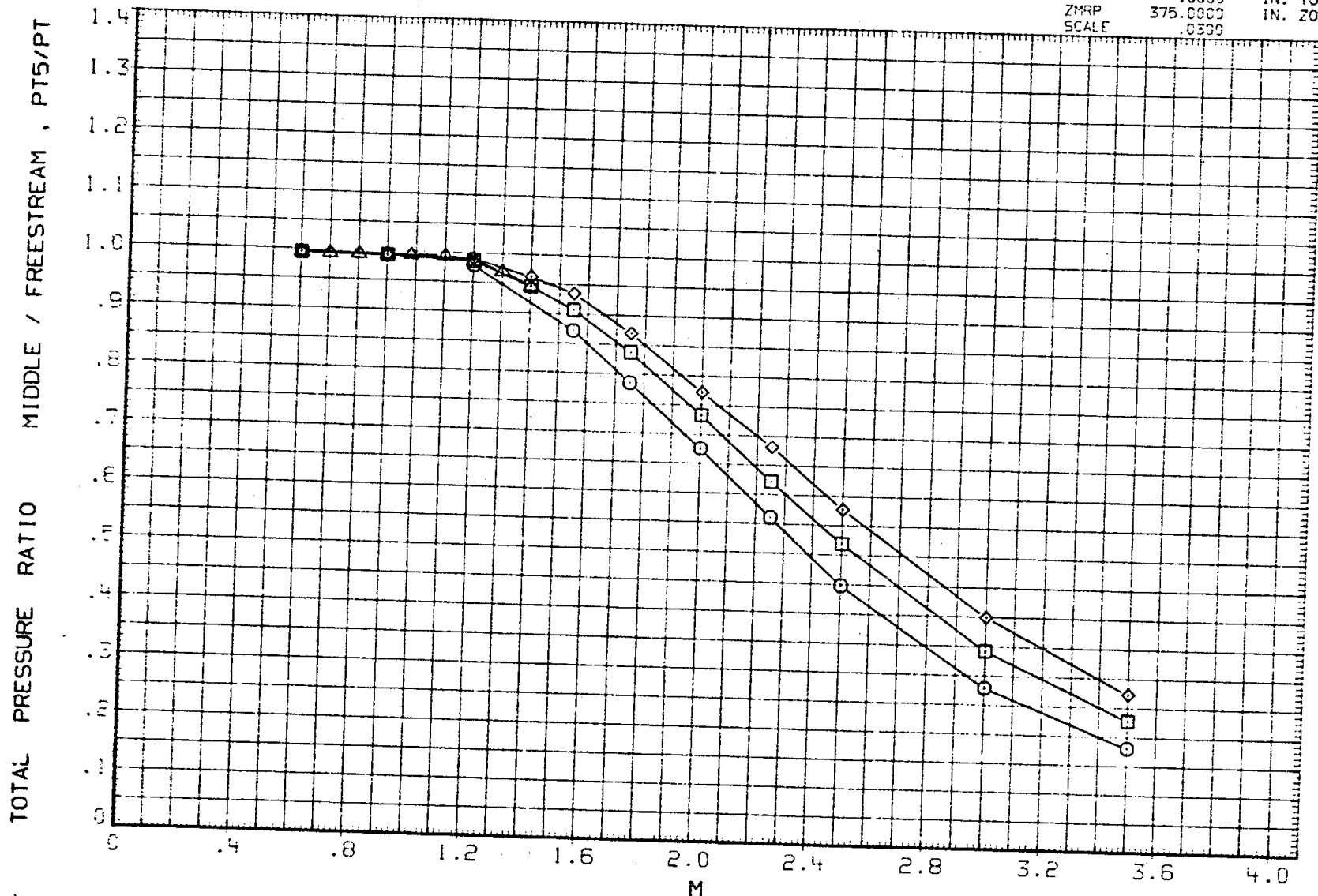


FIG. 25 EFFECT OF BETA ON TOTAL PRESSURE RATIO PTI/PT RIGHT RAKE

(E) ALPHA = 24.00

DATA SET SYMBOL		CONFIGURATION	BETA	ELEVON	AILRON	EDCLAP	REFERENCE INFORMATION
BET803	○	ARC 11-97-87-094 OA161 ORBITER * RAKES	-5.000	.000	.000	-7.170	SECF 2690.0000 SQ. FT.
BET805	□	ARC 11-97-87-094 OA161 ORBITER * RAKES	.000	.000	.000	-7.170	REF 474.8000 IN.
BET807	◇	ARC 11-97-87-094 OA161 ORBITER * RAKES	5.000	.000	.000	-7.170	BREF 936.0000 IN.
BET801	△	ARC 11-97-87-094 OA161 ORBITER * WING * RAKES	.000	.000	.000	-7.170	XMRP 1076.6800 IN. XO
							YMRP .0000 IN. YO
							ZMRP 375.0000 IN. ZO
							SCALE .0300

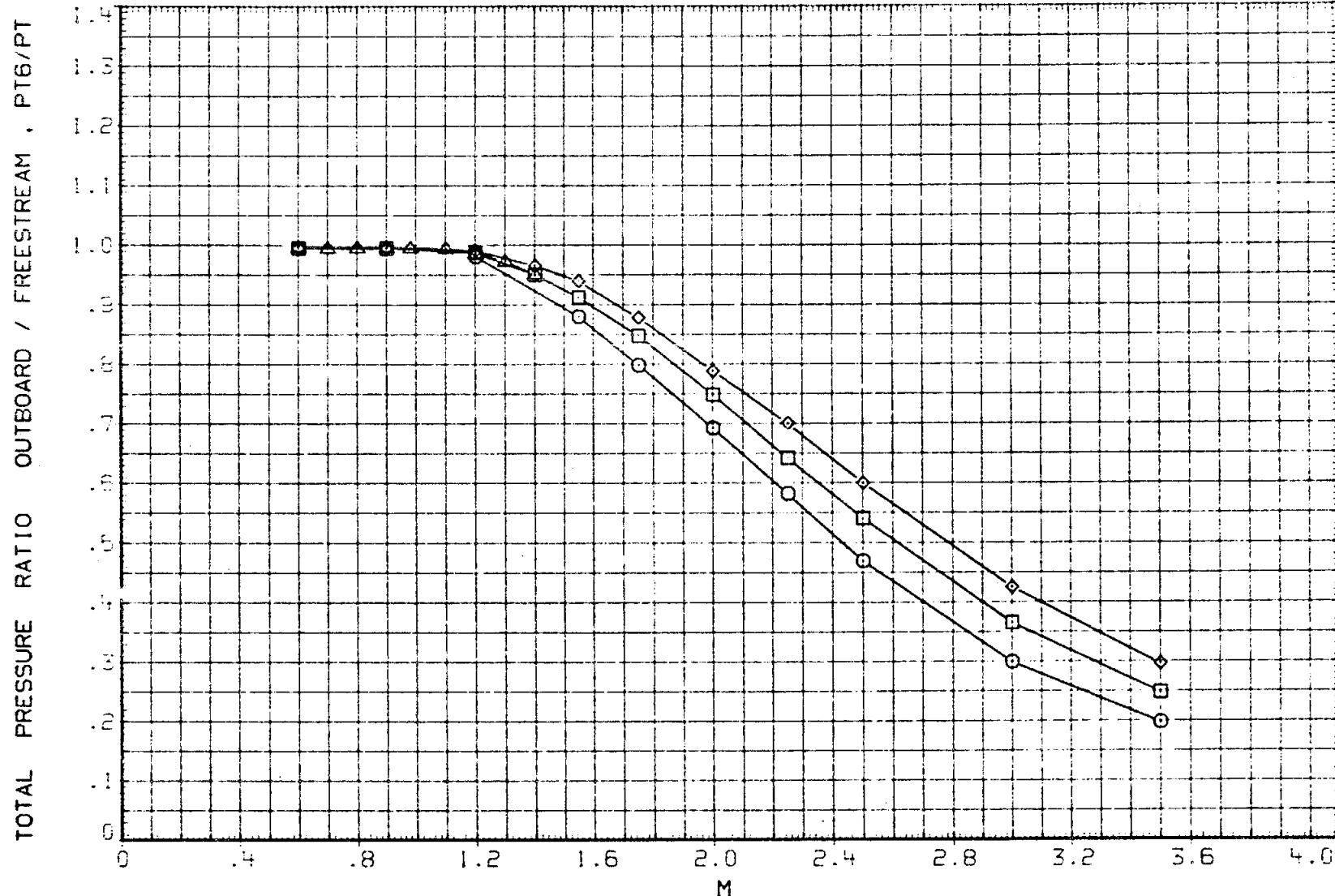


FIG. 25 EFFECT OF BETA ON TOTAL PRESSURE RATIO PT1/PT RIGHT RAKE

(E) ALPHA = 24.00



(IE7X03) ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL	DATA	PARAMETRIC VALUES
M21	ALPHA	.000
M23	ELEVON	.000
M13	BDFLAP	-7.170
M52	BETA	-5.000
M54	AILRON	.000
M64		

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

CALCULATED LOCAL MACH NUMBERS FOR VARIOUS RAKE AND TAP POSITIONS

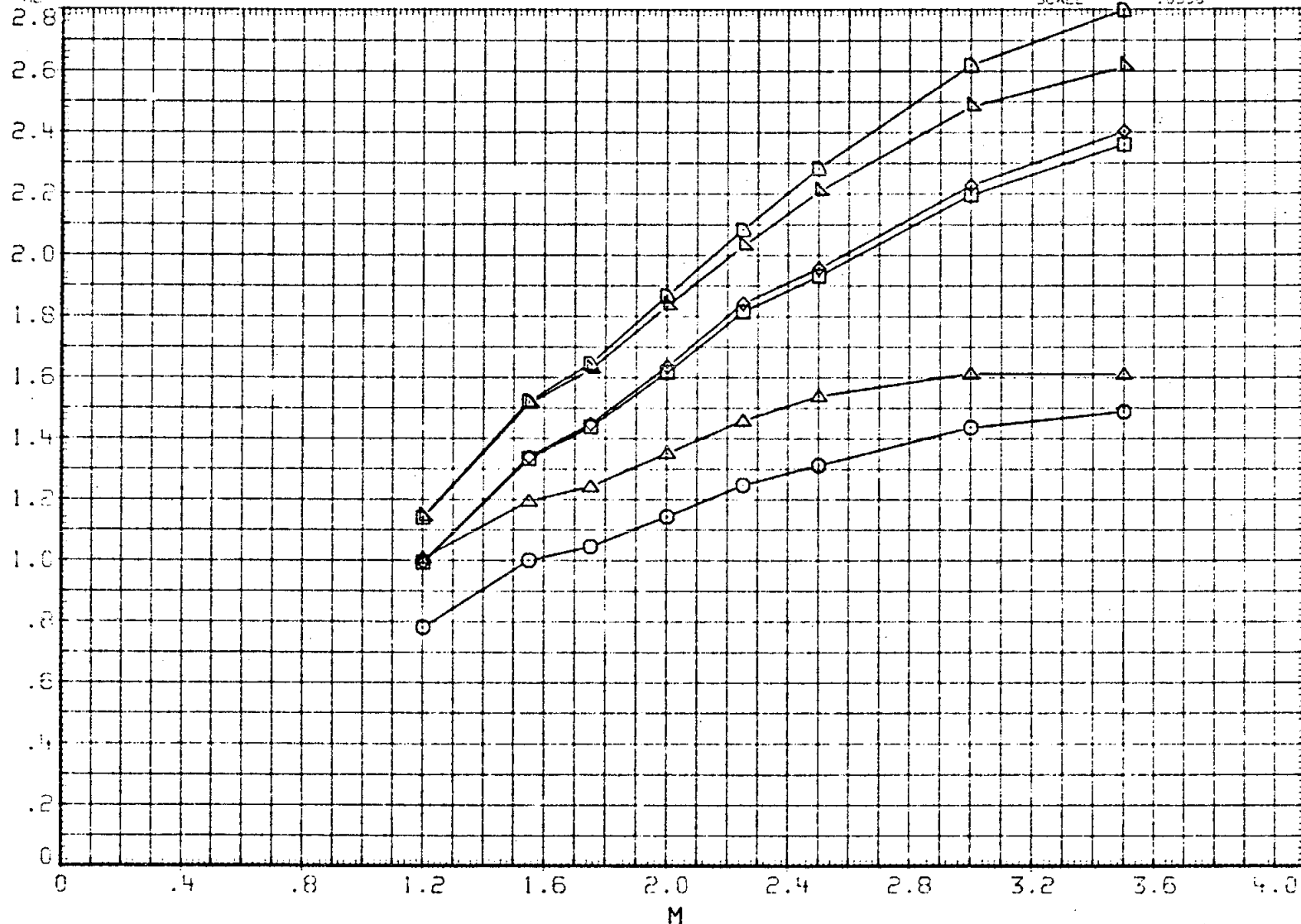


FIG. 26 EFFECT OF POSITION ON CALCULATED LOCAL MACH NUMBER BOTH RAKES

SYMBOL DATA

PARAMETRIC VALUES  
 ALPHA 6.000 BETA -5.000  
 ELEVON .000 AILRON .000  
 BOFLAP -7.170

REFERENCE INFORMATION

SREF 9690.0000 SC.FT  
 LREF 474.8000 IN.  
 BREF 936.6000 IN.  
 XMPP 1076.6000 IN. XO  
 YMPD .0000 IN. YO  
 ZMPP 375.0000 IN. ZO  
 SCALE .0500

CALCULATED LOCAL MACH NUMBERS FOR VARIOUS RAKE AND TAP POSITIONS

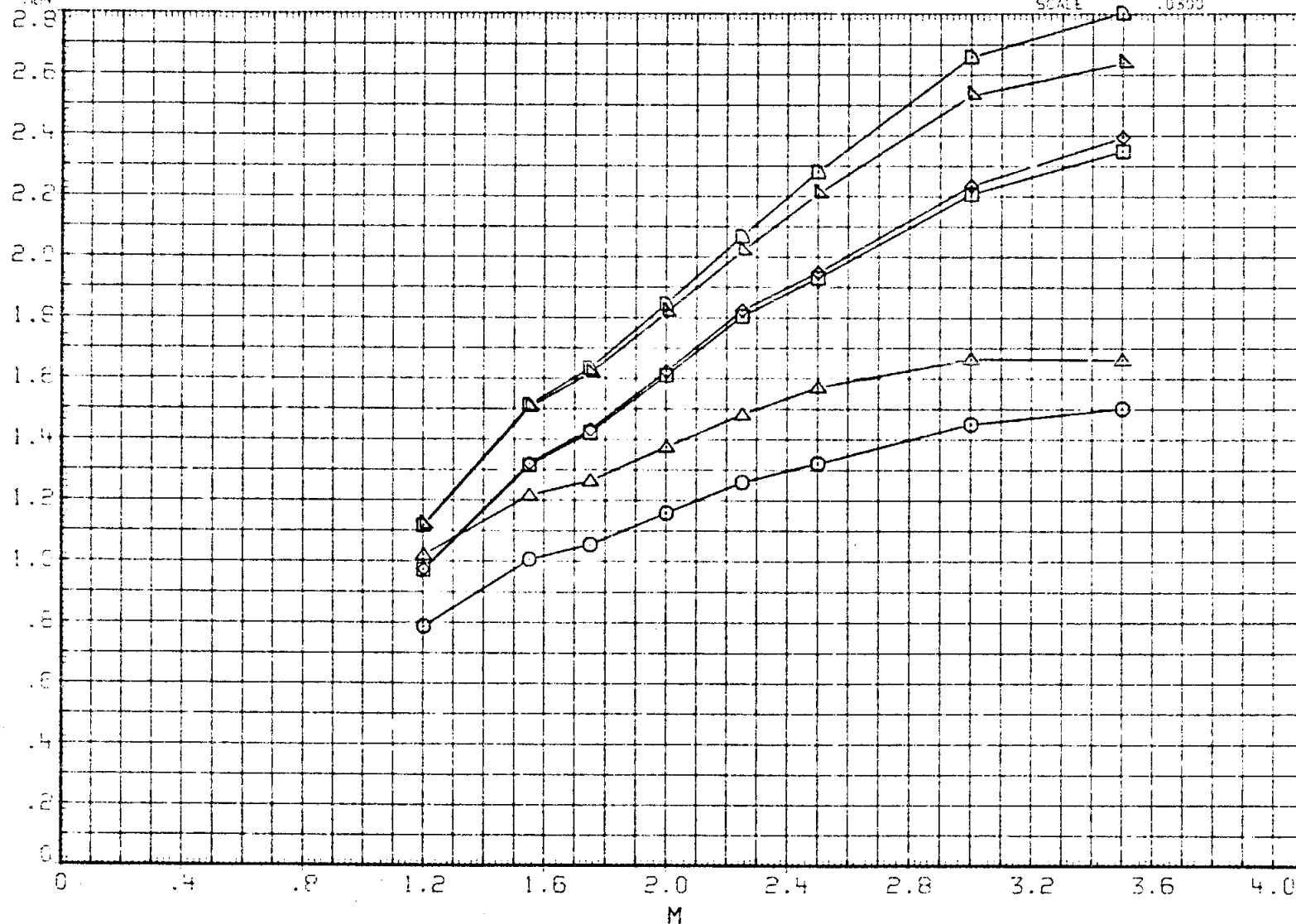


FIG. 26 EFFECT OF POSITION ON CALCULATED LOCAL MACH NUMBER BOTH RAKES

(IE7X03) ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL DATA

PARAMETRIC VALUES  
 ALPHA 12.000 BETA -5.000  
 ELEVON .000 AILRON .000  
 BOFLAP -7.170

REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 PREF 936.6900 IN.  
 XMPP 1076.6800 IN. XO  
 YMPP .0000 IN. YO  
 ZMPP .0000 IN. ZO  
 SCALE .0300

CALCULATED LOCAL MACH NUMBERS FOR VARIOUS RAKE AND TAP POSITIONS

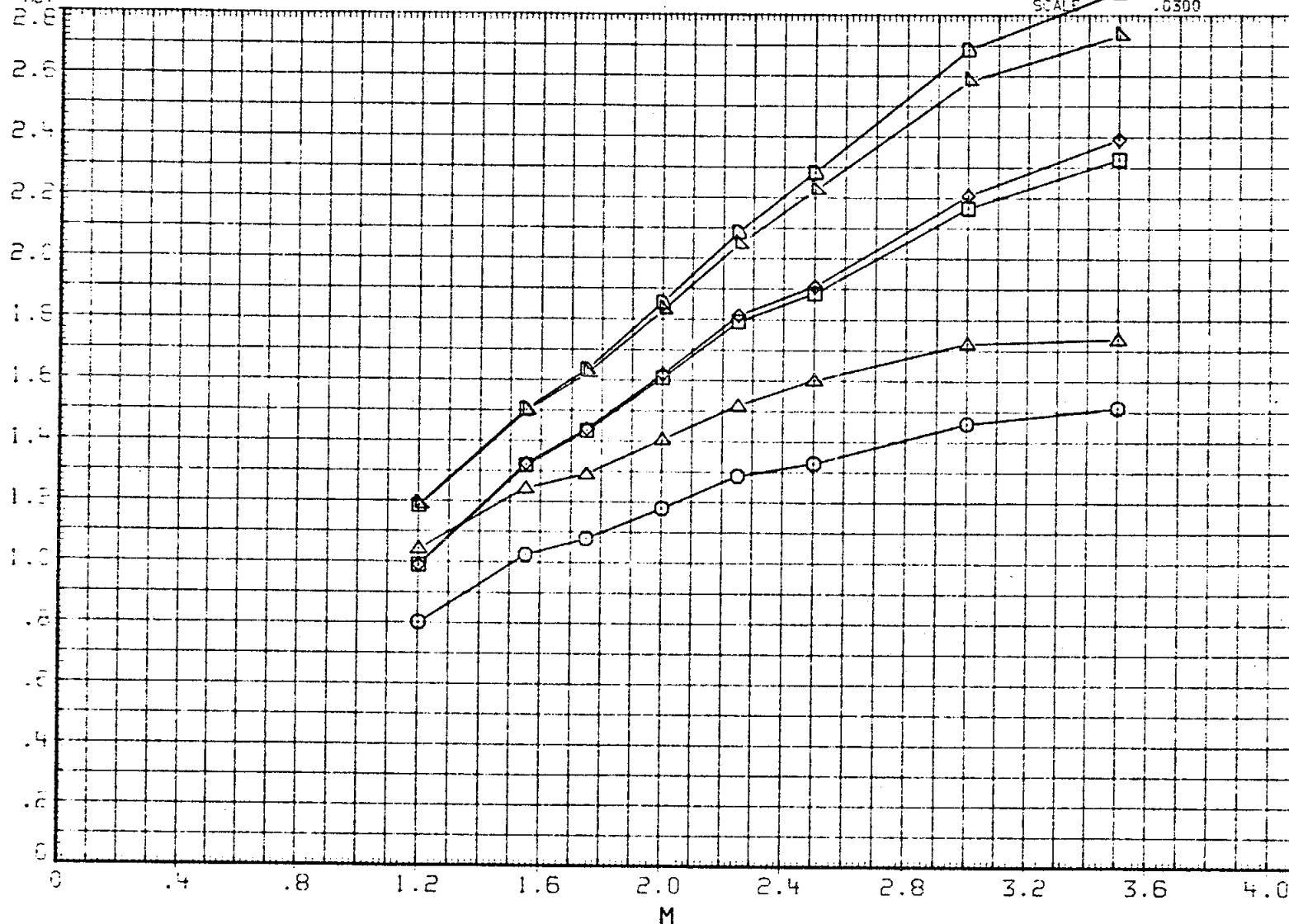


FIG. 26 EFFECT OF POSITION ON CALCULATED LOCAL MACH NUMBER BOTH RAKES

SYSTEM DATA

PARAMETRIC VALUES  
 ALPHA 18.000 ELCA -5.000  
 ELEVON .000 AILRON .000  
 BOFLAP -7.170

REFERENCE INFORMATION

SREF 2890.0000 SQ. FT.  
 CREF 574.8000 IN.  
 BRFP 936.6800 IN.  
 YMRP 1076.5800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0000

CALCULATED LOCAL MACH NUMBERS FOR VARIOUS RAKE AND TAP POSITIONS

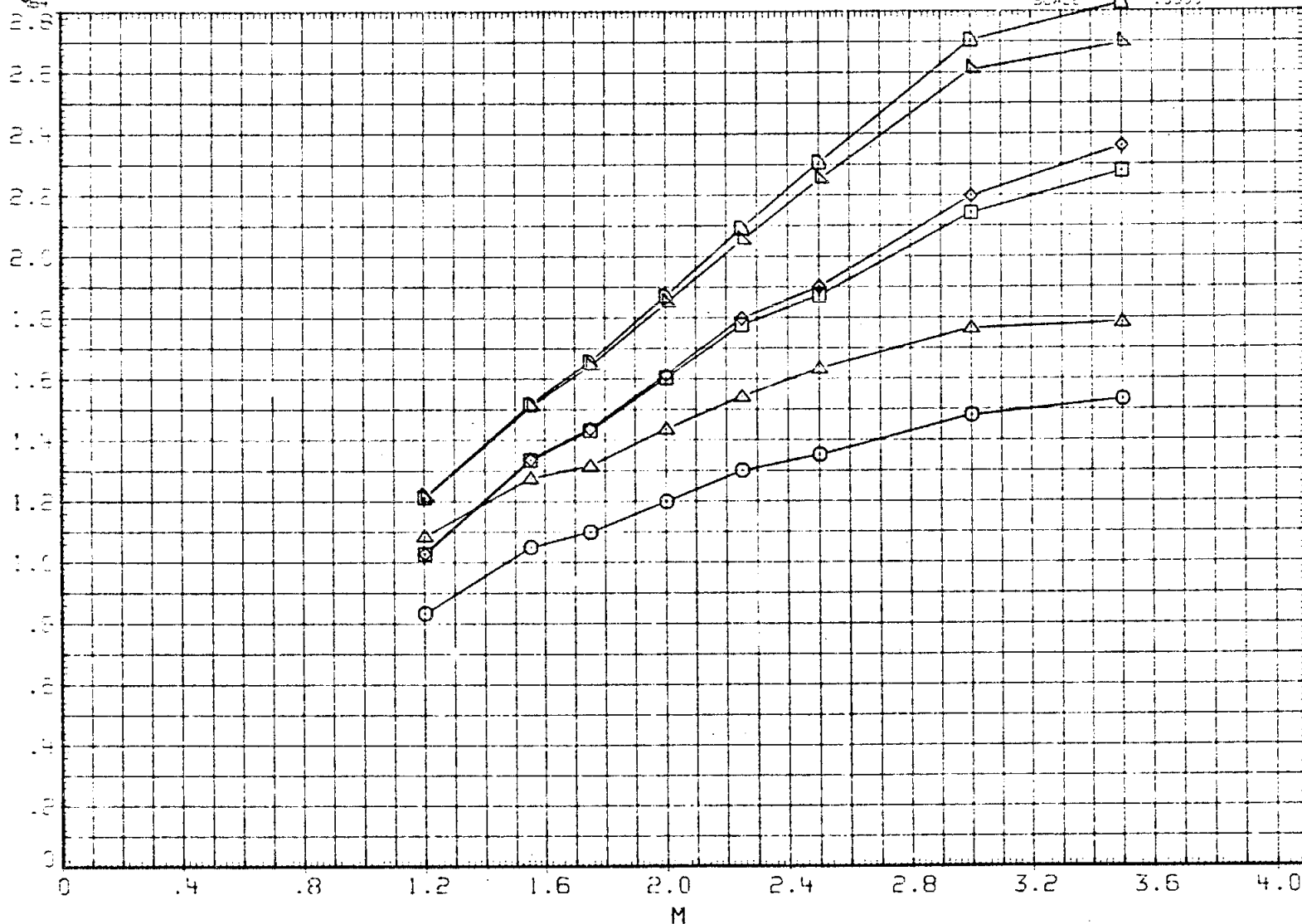


FIG. 26 EFFECT OF POSITION ON CALCULATED LOCAL MACH NUMBER BOTH RAKES

(1E7X03)

ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL DATA

PARAMETRIC VALUES

M21	ALPHA	24.000	BETA	-5.000
M23	ELEVON	.000	AILRON	.000
M13	BDFLAP	-7.170		
M52				
M54				
M64				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	75.0000	IN. ZO
SCALE	.0300	

CALCULATED LOCAL MACH NUMBERS FOR VARIOUS RAKE AND TAP POSITIONS

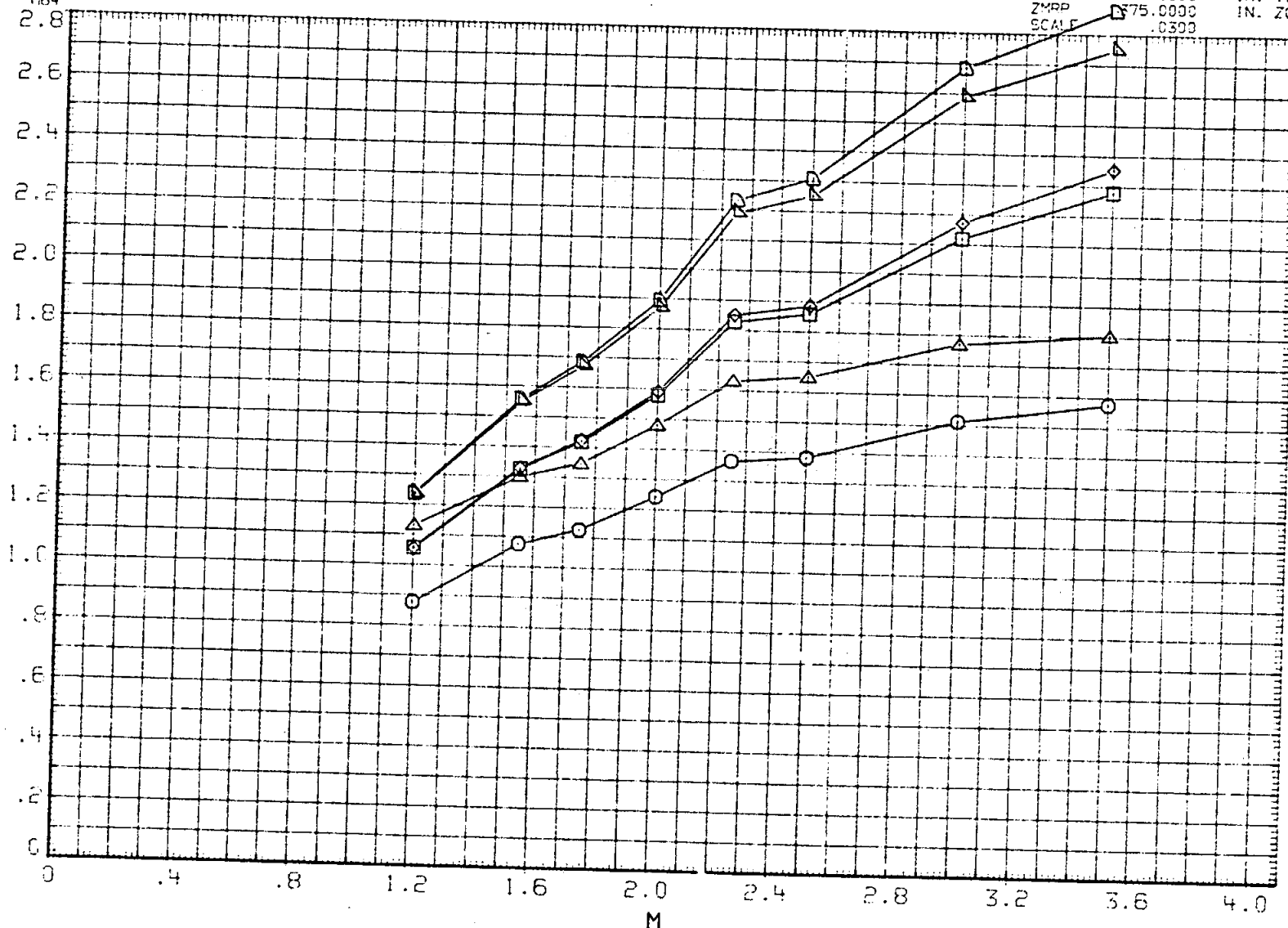


FIG. 26 EFFECT OF POSITION ON CALCULATED LOCAL MACH NUMBER BOTH RAKES

(1E7X05)

ARC 11-27-87-094 OA161 ORBITER + RAKES

REFERENCE INFORMATION

SYMBOL DATA

PARAMETRIC VALUES

SREF	2690.0000	SG.FY.
URET	474.8000	IN.
EPET	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

M21	ALPRA	.000	BETA	.000
M23	ELEVON	.000	AILRON	.000
M13	BOFLAP	-7.170		
M52				
M54				
M64				

CALCULATED LOCAL MACH NUMBERS FOR VARIOUS RAKE AND TAP POSITIONS

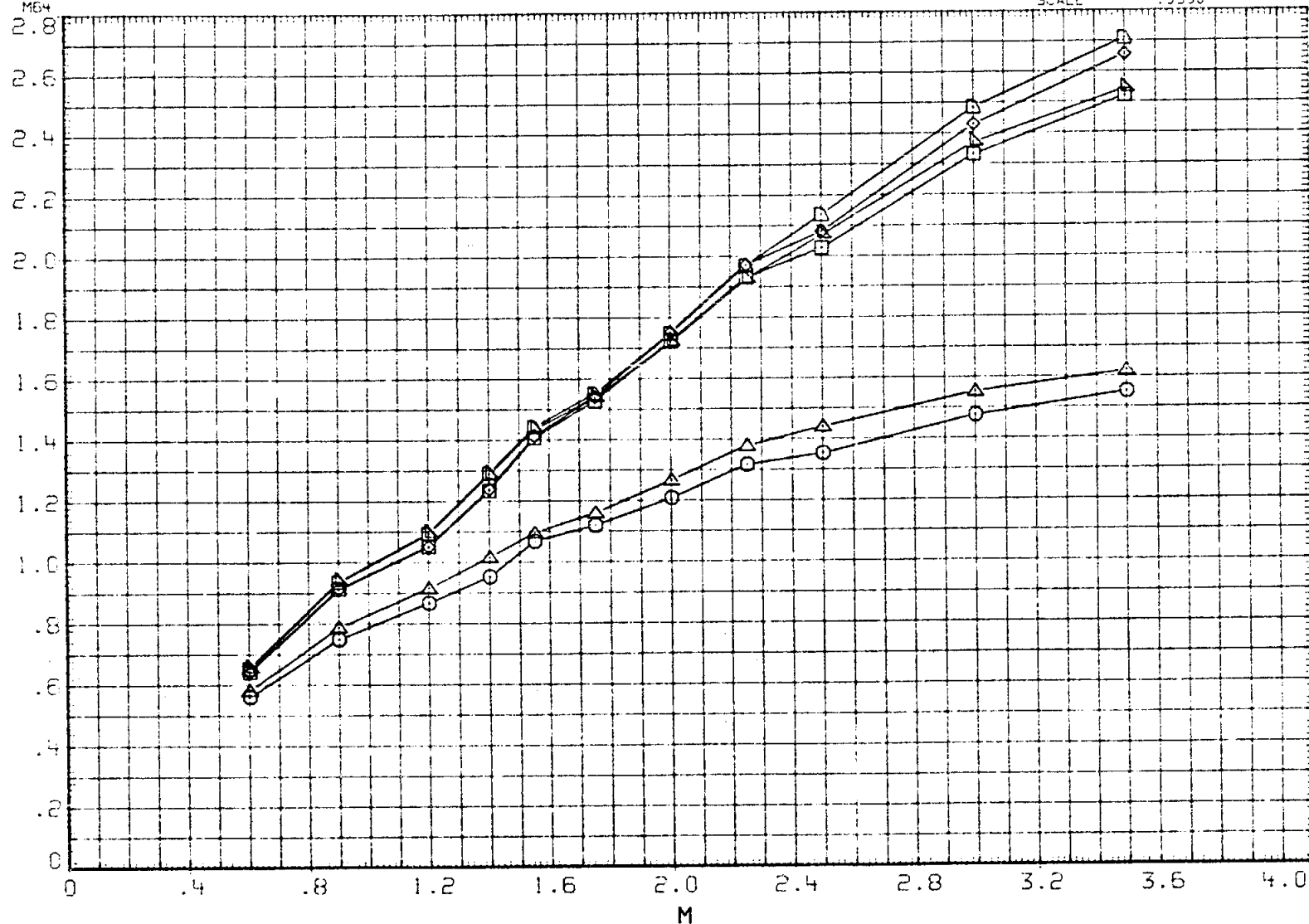


FIG. 26 EFFECT OF POSITION ON CALCULATED LOCAL MACH NUMBER BOTH RAKES

(1E7X05) ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL DATA

PARAMETRIC VALUES				
M21	ALPHA	6.000	BETA	.000
M23	ELEVON	.000	AILRON	.000
M13	BDFLAP	-7.170		
M52				
M54				
M56				

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	935.5800	IN.
XMPP	1076.6200	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.6000	IN. ZO
SCALE	.0300	

CALCULATED LOCAL MACH NUMBERS FOR VARIOUS RAKE AND TAP POSITIONS

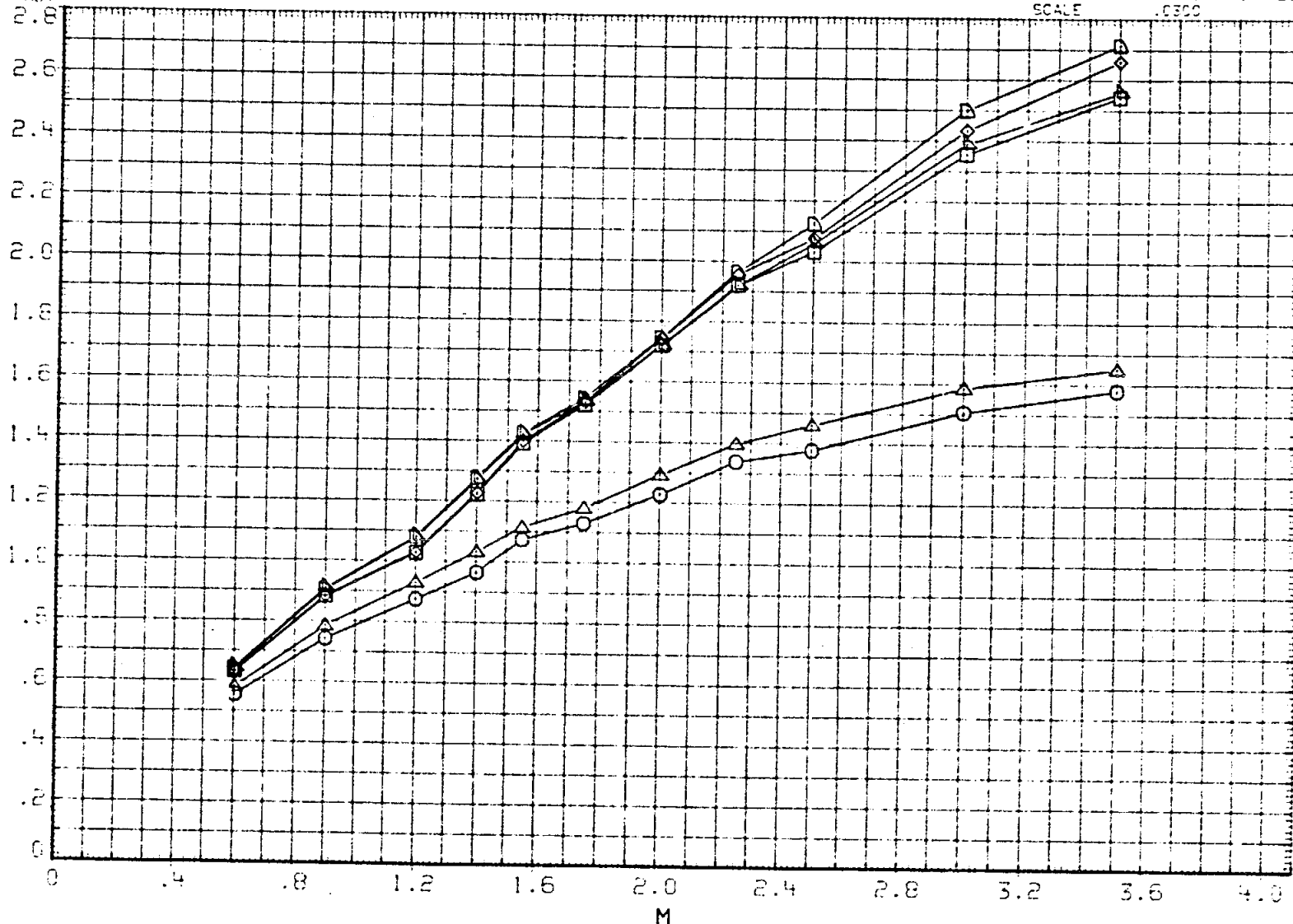


FIG. 26 EFFECT OF POSITION ON CALCULATED LOCAL MACH NUMBER BOTH RAKES

SYMBOL

DATA

PARAMETRIC VALUES

REFERENCE INFORMATION

ALPHA 12.000 BETA .000  
ELEVON .000 AILRON .000  
ROFLAP -7.170

SREF 2690.0000 90.77  
LREF 474.0000 IN.  
BREF 936.0000 IN.  
YMRP 1076.0000 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0000

CALCULATED LOCAL MACH NUMBERS FOR VARIOUS RAKE AND TAP POSITIONS

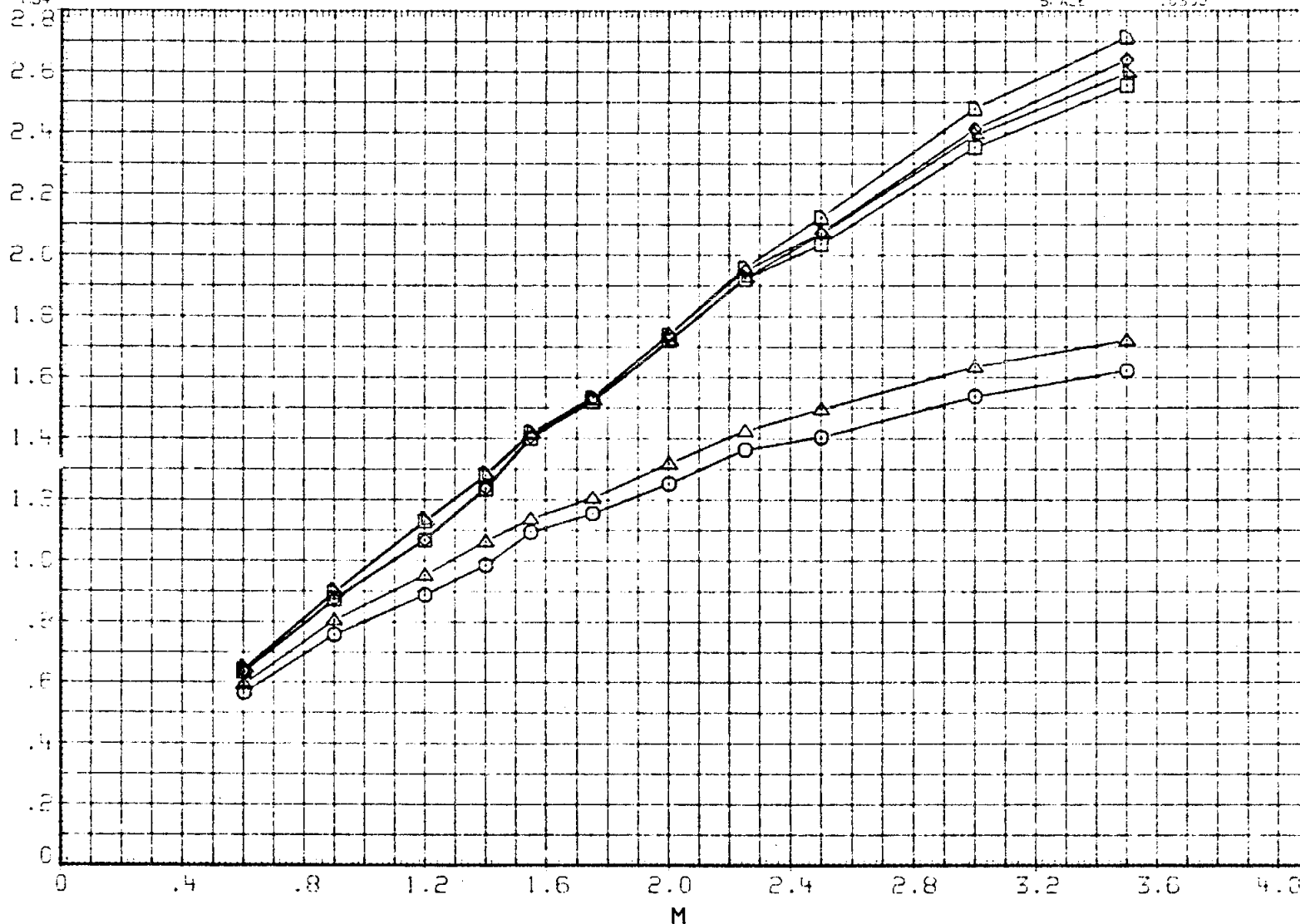


FIG. 26 EFFECT OF POSITION ON CALCULATED LOCAL MACH NUMBER BOTH RAKES



(1E7X05)

ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL DATA

PARAMETRIC VALUES

REFERENCE INFORMATION

M21	ALPHA	18.000	BETA	.000
M23	ELEVON	.000	AILRON	.000
M13	BOFLAP	-7.170		
M52				
M54				
M56				

SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

CALCULATED LOCAL MACH NUMBERS FOR VARIOUS RAKE AND TAP POSITIONS

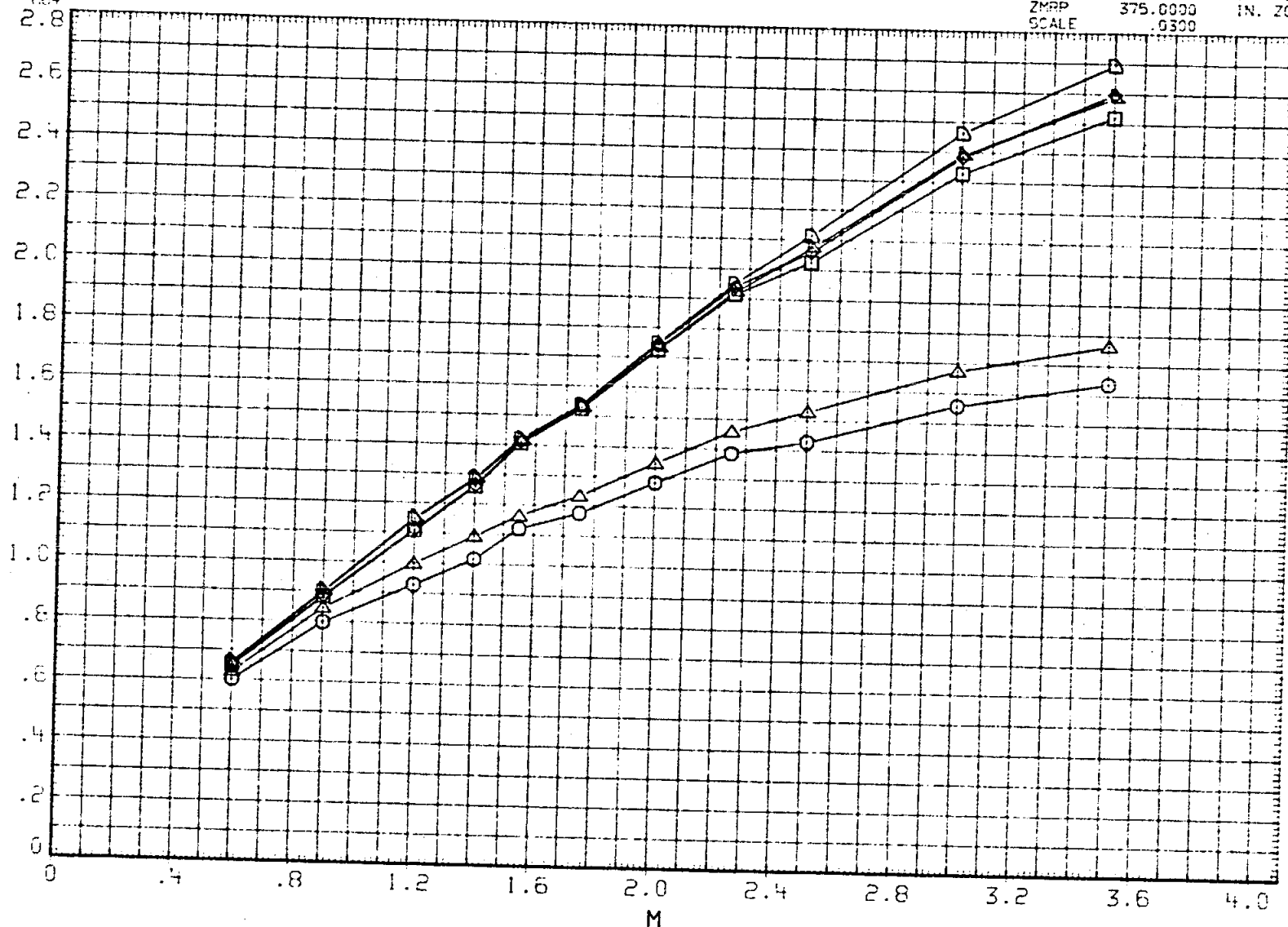


FIG. 26 EFFECT OF POSITION ON CALCULATED LOCAL MACH NUMBER BOTH RAKES

SYNOPSIS

DATA

PARAMETRIC VALUES

REFERENCE INFORMATION

ALPHA	24.000	BETA	1.000
ELEVON	1.000	AIRLON	1.000
BDFLAP	-7.170		

ORIT	2690.0000	SC.FTL
VALP	474.8000	IN.
BRIF	936.6800	IN.
XMPP	1076.6800	IN. XO
YVPP	1000.0000	IN. YO
ZMPP	575.0000	IN. ZO
SCALE	1.5000	

CALCULATED LOCAL MACH NUMBERS FOR VARIOUS RAKE AND TAP POSITIONS

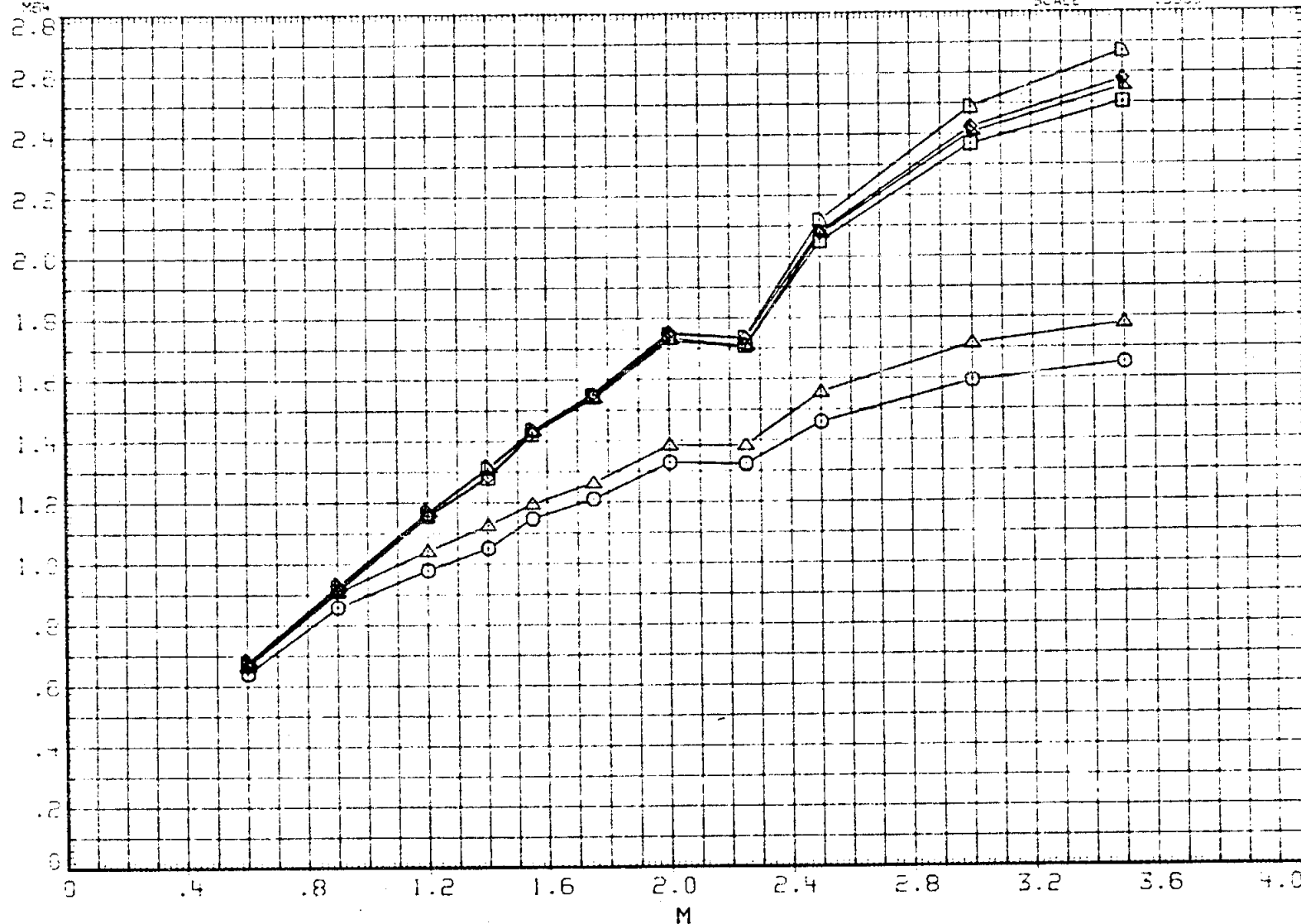


FIG. 26 EFFECT OF POSITION ON CALCULATED LOCAL MACH NUMBER BOTH RAKES

(IE7X07) ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL DATA

PARAMETRIC VALUES				
M21	ALPHA	.000	BETA	5.000
M23	ELEVON	.000	AIRLON	.000
M13	BDFLAP	-7.170		
M52				
M54				
M54				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6900	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0320	

CALCULATED LOCAL MACH NUMBERS FOR VARIOUS RAKE AND TAP POSITIONS

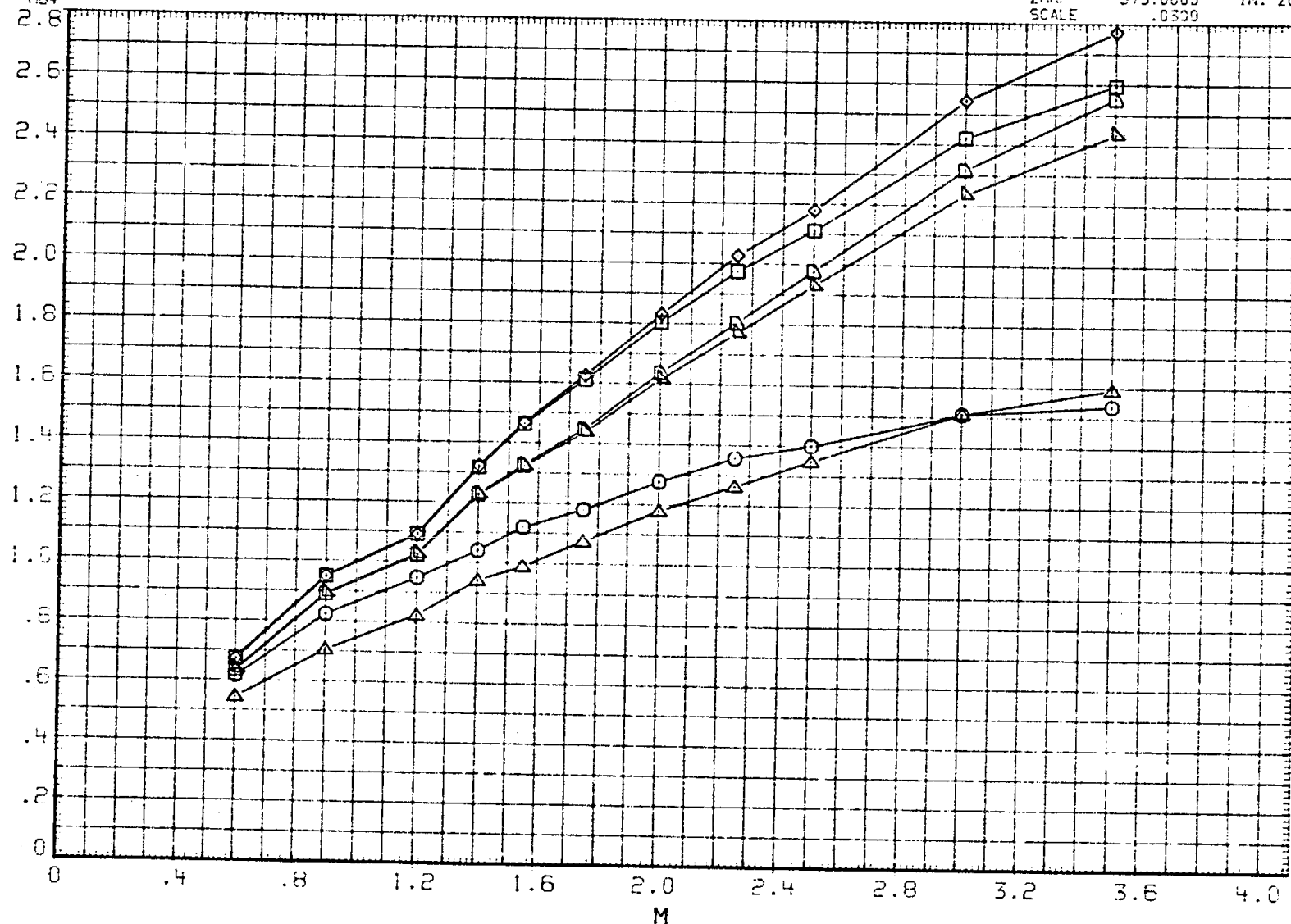


FIG. 26 EFFECT OF POSITION ON CALCULATED LOCAL MACH NUMBER BOTH RAKES

SYMBOL DATA

PARAMETRIC VALUES  
 ALPHA 6.000 BETA 5.000  
 ELEVON .000 AILERON .000  
 BDFLAP -7.170

REFERENCE INFORMATION

SREF 2690.0000 SQ. FT.  
 LREF 474.8000 IN.  
 BREF 949.6900 IN.  
 XMRP 1076.6900 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE .0000

CALCULATED LOCAL MACH NUMBERS FOR VARIOUS RAKE AND TAP POSITIONS

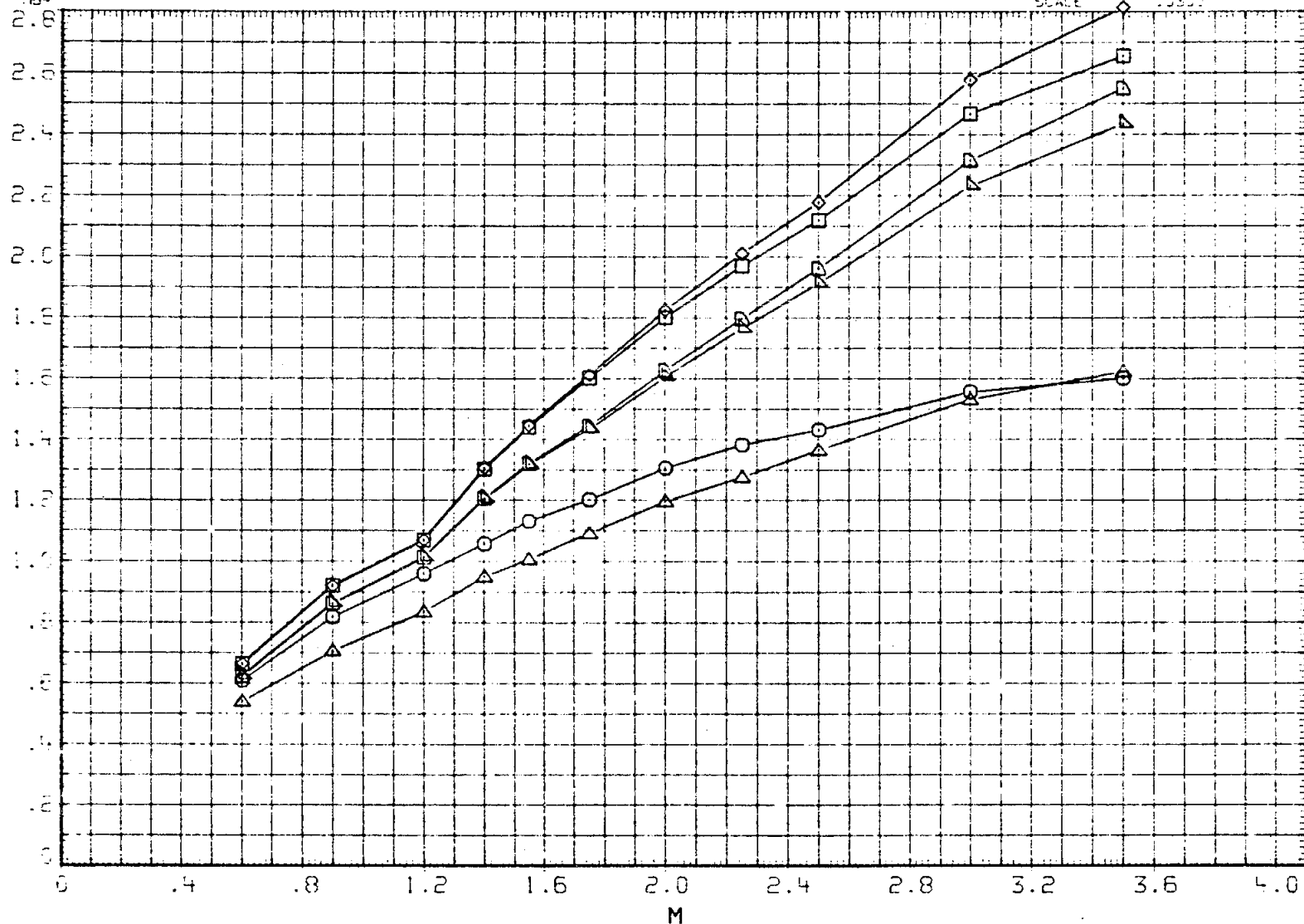


FIG. 26 EFFECT OF POSITION ON CALCULATED LOCAL MACH NUMBER BOTH RAKES

(IE7X07)

ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL DATA

ALPHA  
ELEVON  
BDFLAP

PARAMETRIC VALUES

BETA  
AILRON5.000  
.000

REFERENCE INFORMATION

SREF	2590.0000	SO.FT.
LREF	474.8000	IN.
BREF	935.5500	IN.
XMPP	1076.6200	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0500	

CALCULATED LOCAL MACH NUMBERS FOR VARIOUS RAKE AND TAP POSITIONS

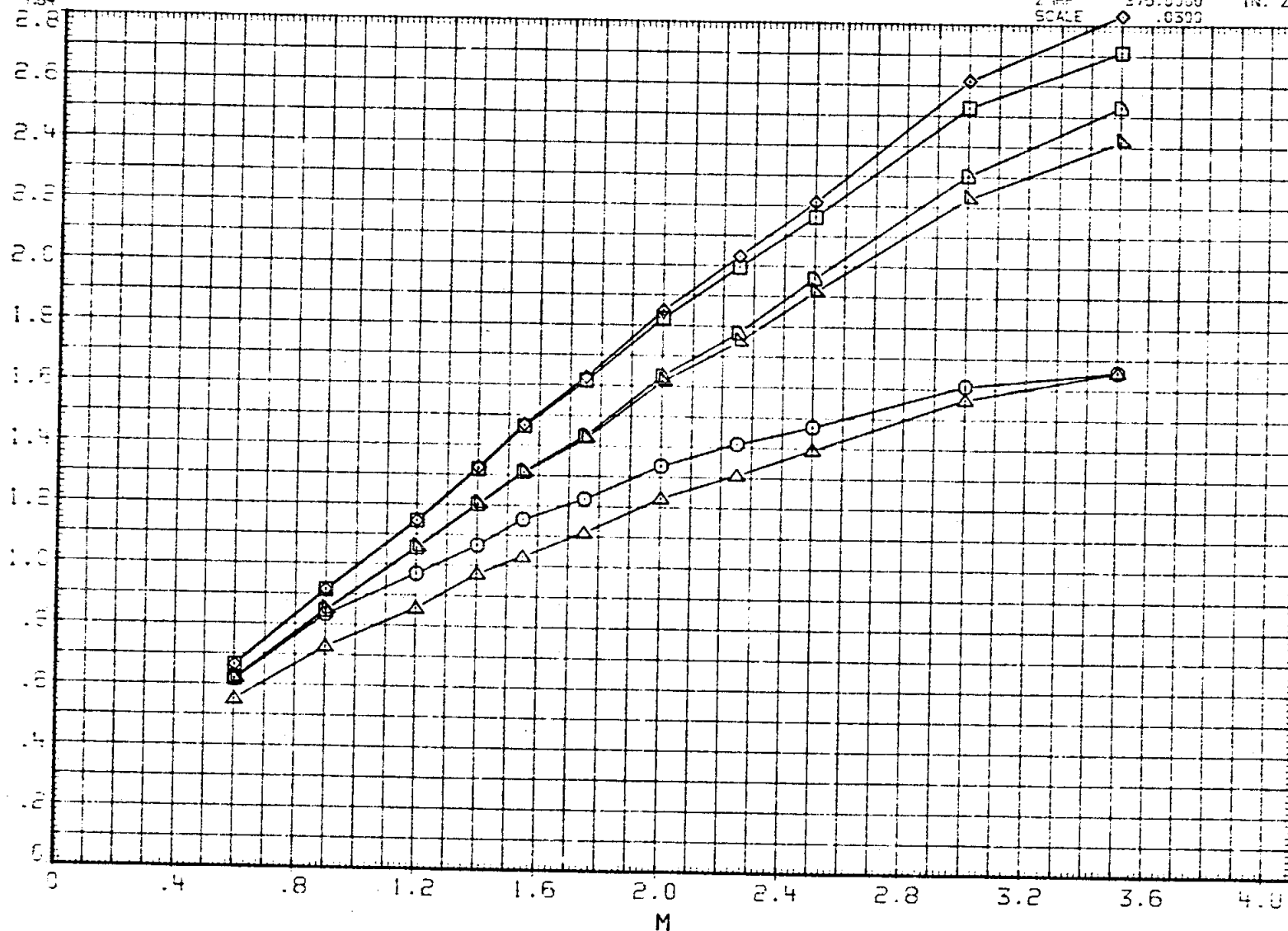


FIG. 26 EFFECT OF POSITION ON CALCULATED LOCAL MACH NUMBER BOTH RAKES

SYMBOL DATA

PARAMETRIC VALUES  
 ALPHA 18.000 BETA 5.000  
 ELEVON .000 AIRCON .000  
 BDFLAP -7.170

REFERENCE INFORMATION

SREF 2680.0000 SQ.FT.  
 LREF 474.8500 IN.  
 BREF 936.6800 IN.  
 XMFP 1076.6800 IN. XO  
 YMFP .0000 IN. YO  
 ZMFP 375.0000 IN. ZO  
 SCALE .0300

CALCULATED LOCAL MACH NUMBERS FOR VARIOUS RAKE AND TAP POSITIONS

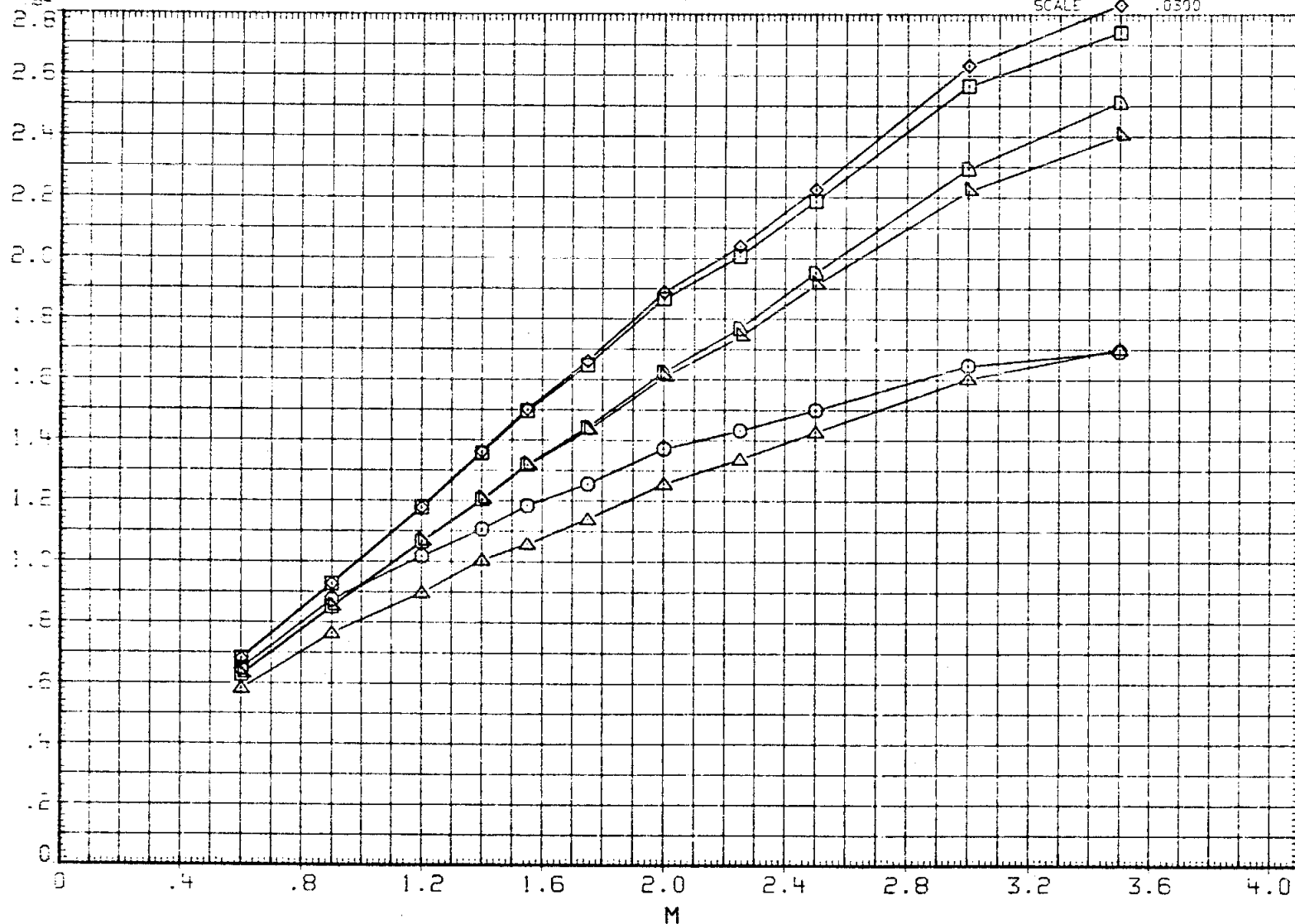


FIG. 26 EFFECT OF POSITION ON CALCULATED LOCAL MACH NUMBER BOTH RAKES

(1E7X07)

ARC 11-97-87-094 OA161 ORBITER + RAKES

SYMBOL DATA

PARAMETRIC VALUES

REFERENCE INFORMATION

M21	ALPHA	24.000	BETA	5.000
M23	ELEVON	.000	AILRON	.000
M13	BDFLAP	-7.170		
M52				
M54				
M64				

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0390	

CALCULATED LOCAL MACH NUMBERS FOR VARIOUS RAKE AND TAP POSITIONS

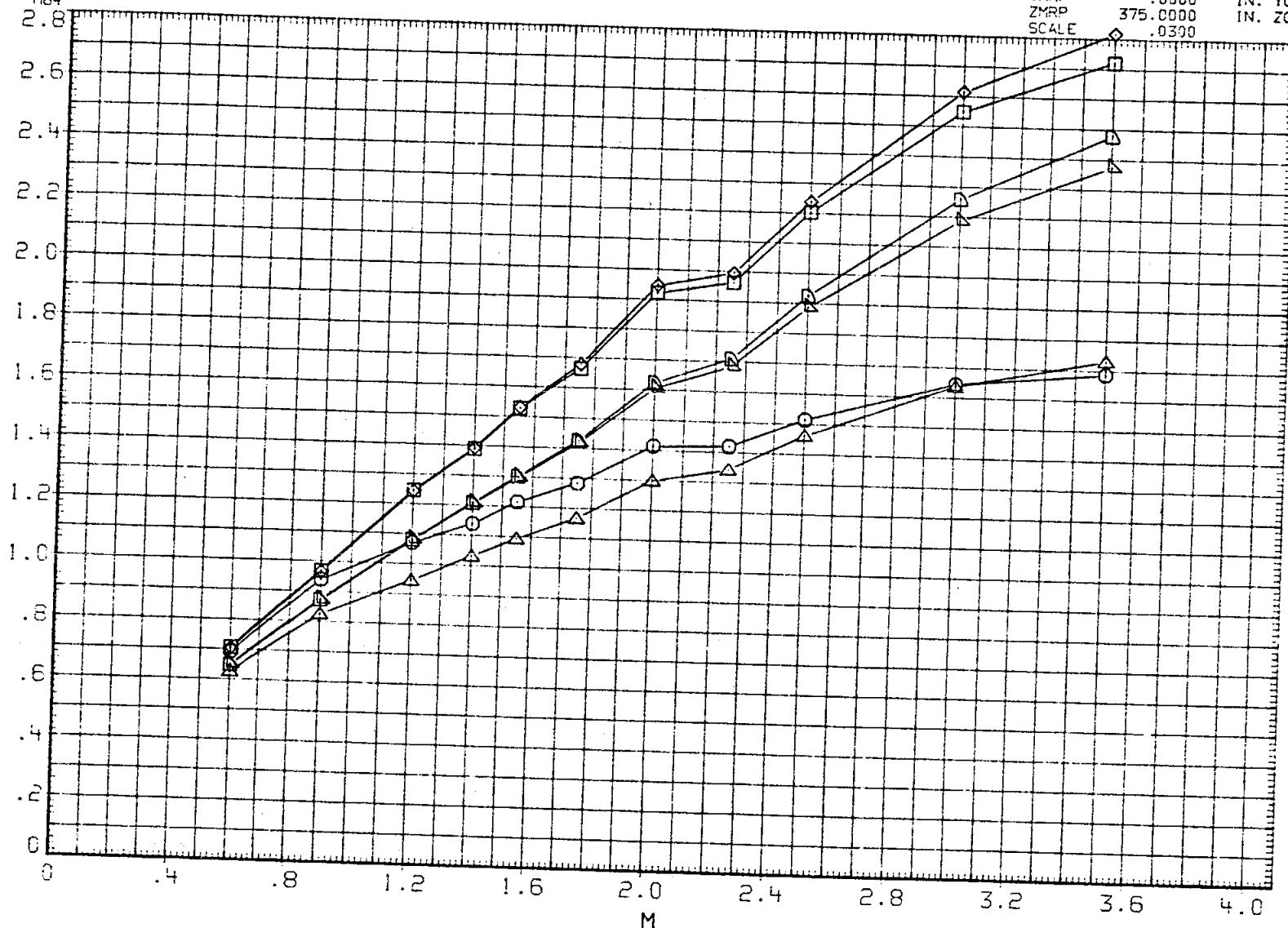


FIG. 26 EFFECT OF POSITION ON CALCULATED LOCAL MACH NUMBER BOTH RAKES

NO. 1

DATA

PARAMETRIC VALUES

021/00	ALPHA	.000	BETA	-5.000
023/00	ELEVON	.000	AILRON	.000
013/00	BDFLAP	-7.170		
052/00				
054/00				
054/00				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRF	1076.5800	IN. XO
YMRF	.0000	IN. YO
ZMRF	375.0000	IN. ZO
SCALE	.0300	

COMPRESSIBLE Q RATIOS FOR VARIOUS RAKE AND TAP POSITIONS

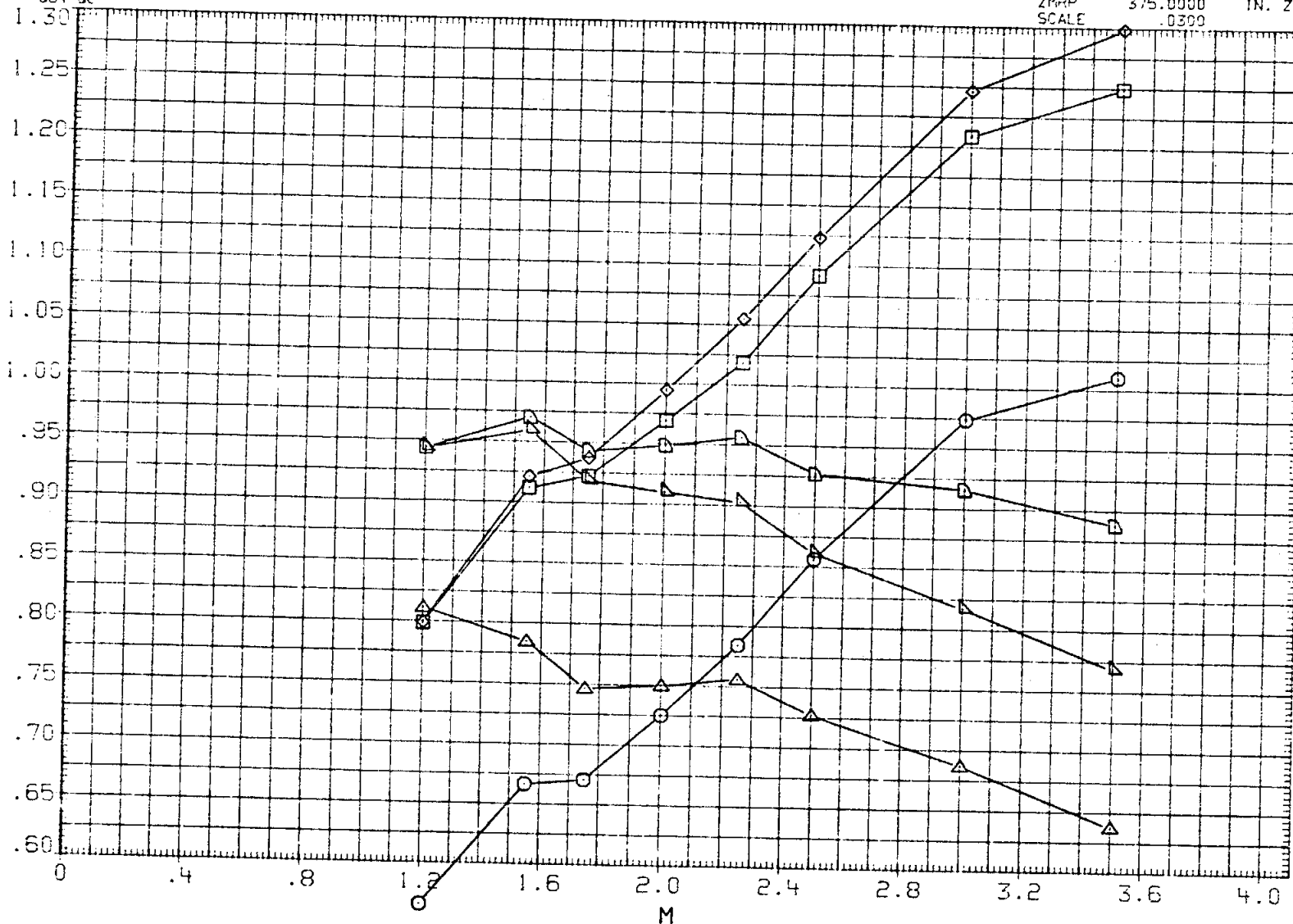


FIG. 27 EFFECT OF POSITION ON COMPRESSIBLE Q RATIO QIJ/QC BOTH RAKES



(1E7B03) ARC 11-97-87-094 OA161 ORBITER + RAKES

SYMBOL	DATA	PARAMETRIC VALUES			
Q21/QC	ALPHA	6.000	BETA	-5.000	
Q23/QC	ELEVON	.000	AILRON	.000	
Q15/QC	BDFLAP	-7.170			
Q52/QC					
Q54/QC					
Q54/QC					

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

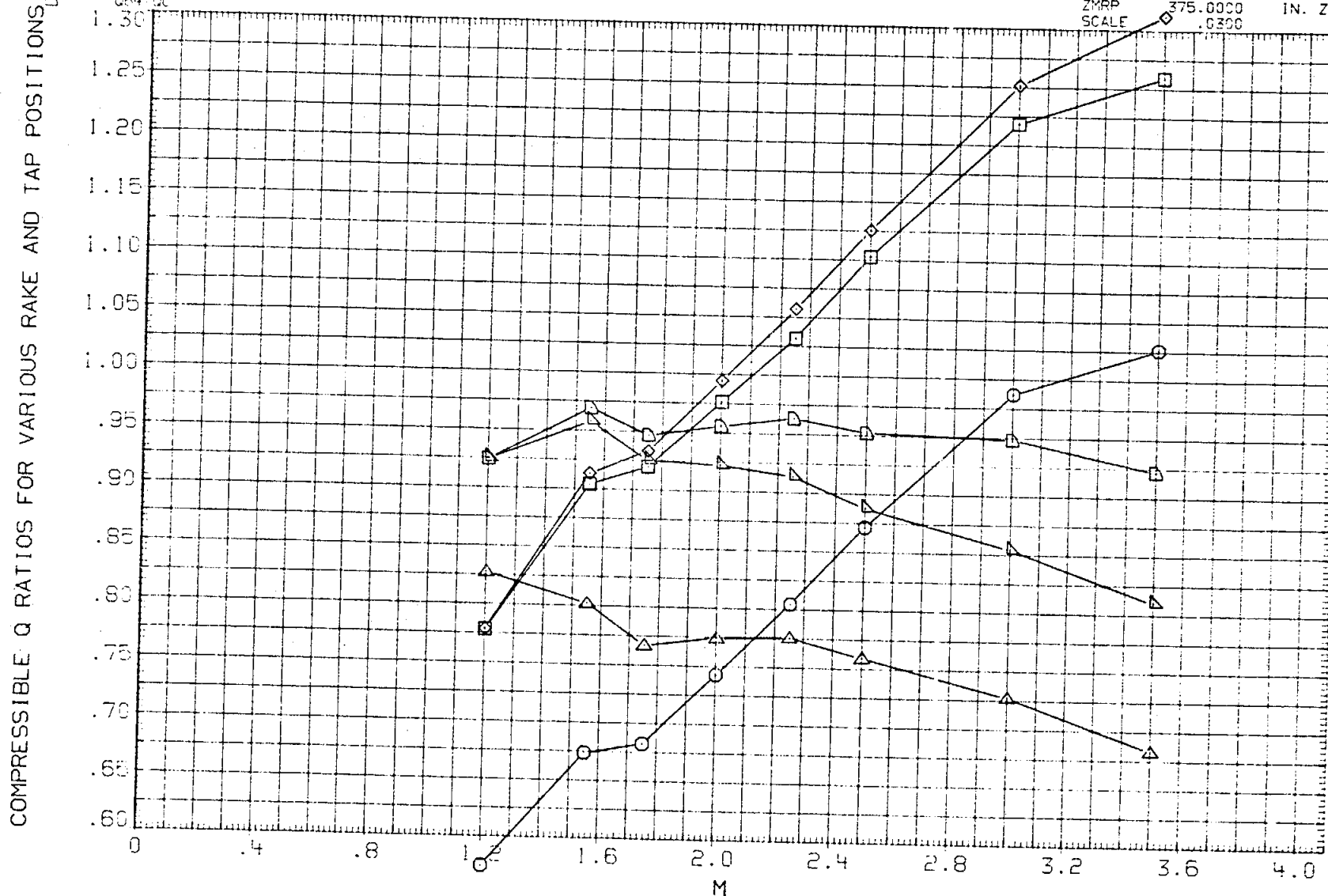


FIG. 27 EFFECT OF POSITION ON COMPRESSIBLE Q RATIO Q1J/QC BOTH RAKES

SYMBOL	DATA	PARAMETRIC VALUES
021/00	ALPHA	12.000
023/00	ELEVON	1.000
013/00	BOFLAP	-7.170
052/00	BETA	-5.000
054/00	AILRON	1.000
054/00		

REFERENCE INFORMATION		
SREF	2690.0000	50. FT.
LREF	104.2000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	1.0000	IN. YO
ZMRP	775.0000	IN. ZO
SCALE	0.0300	

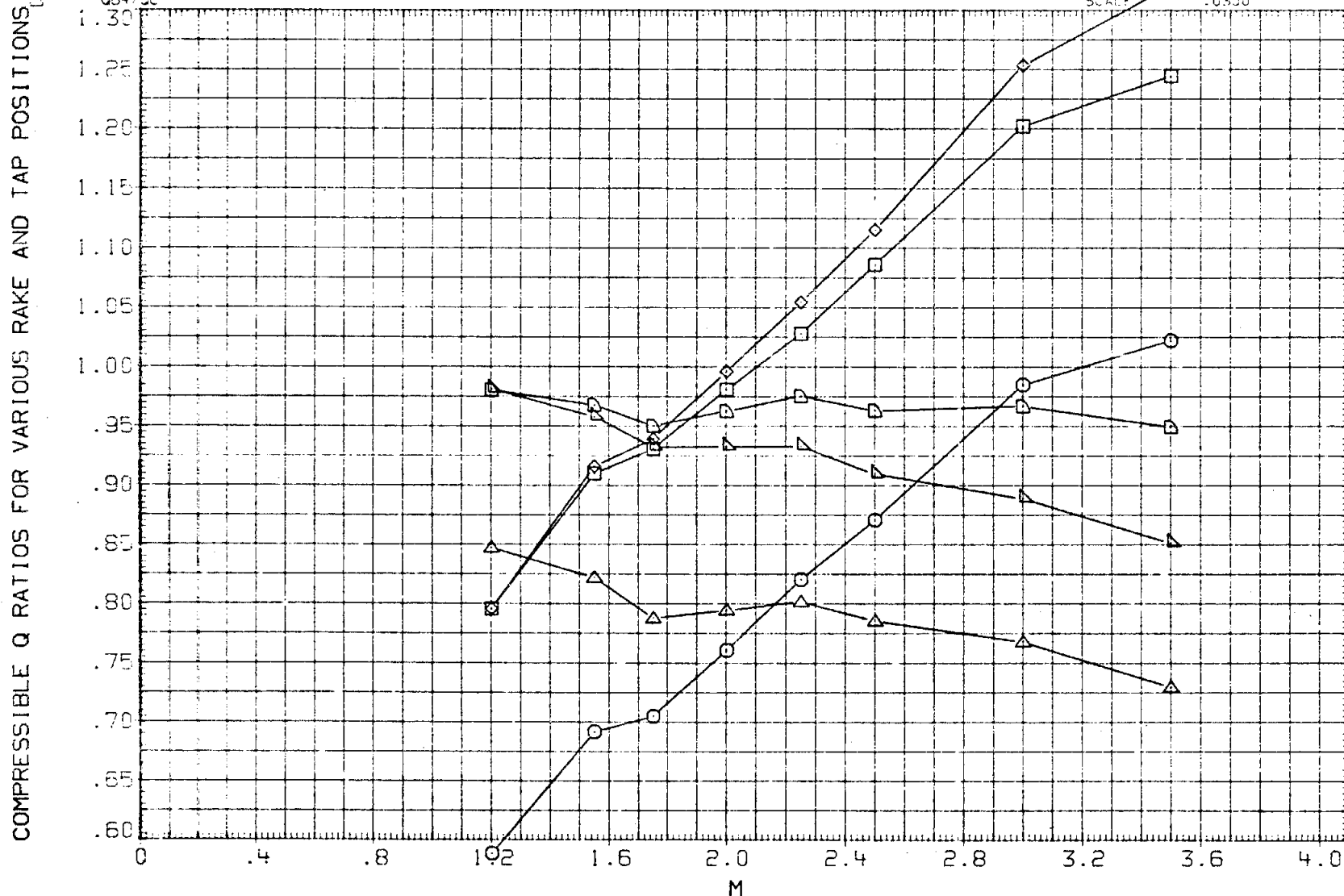


FIG. 27 EFFECT OF POSITION ON COMPRESSIBLE Q RATIO QIJ/QC BOTH RAKES

(1E7B03) ARC 11-97-87-094 0A161 ORBITER + RAKES

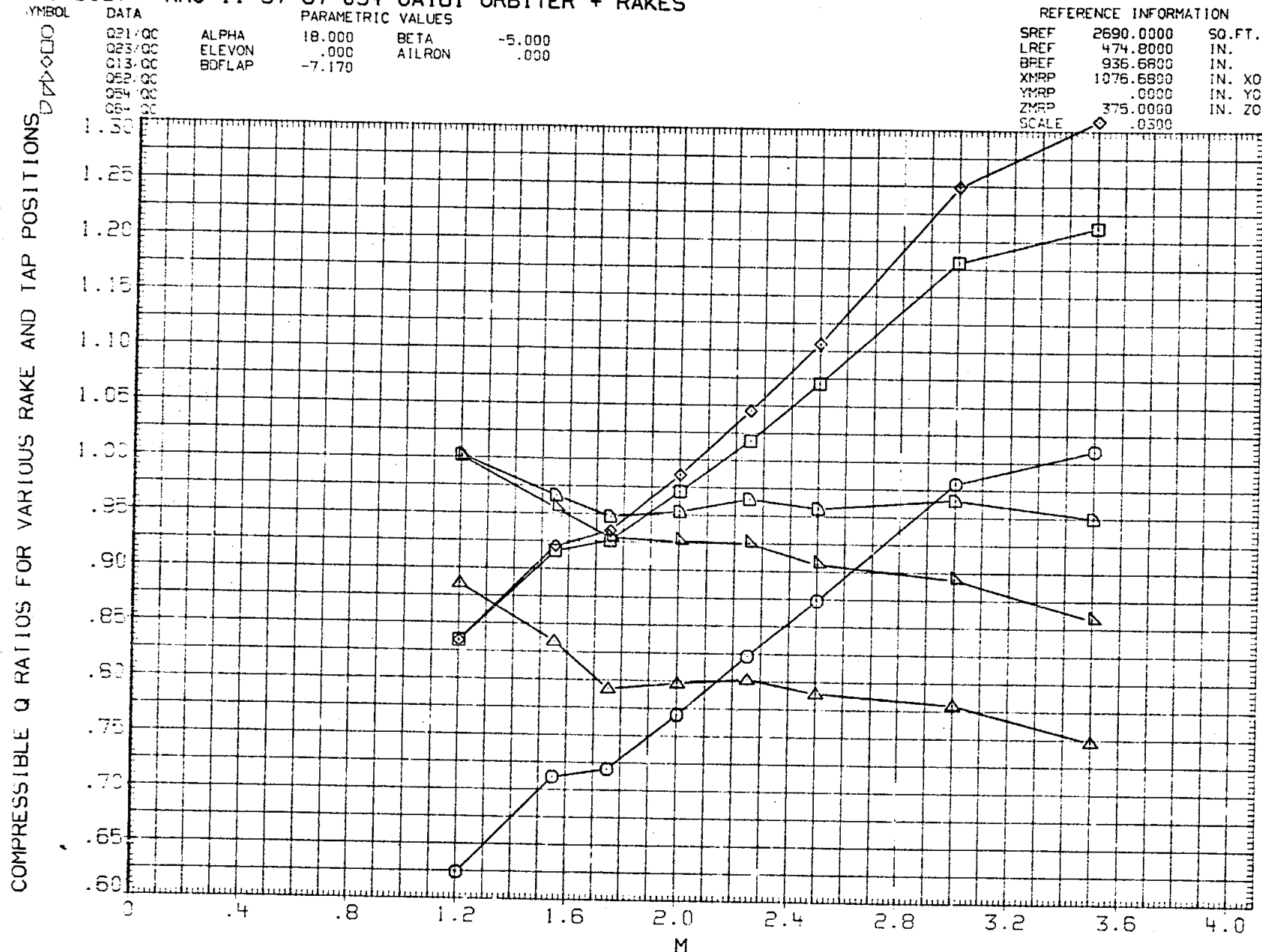


FIG. 27 EFFECT OF POSITION ON COMPRESSIBLE Q RATIO QIJ/QC BOTH RAKES

SYMBOL	DATA	PARAMETRIC VALUES	
021/QC	ALPHA	24.000	BETA -5.000
023/QC	ELEVON	.000	AILRON .000
013/QC	BDFLAP	-7.170	
029/QC			
024/QC			
024/QC			

REFERENCE INFORMATION		
SREF	2690.0000	SC. FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

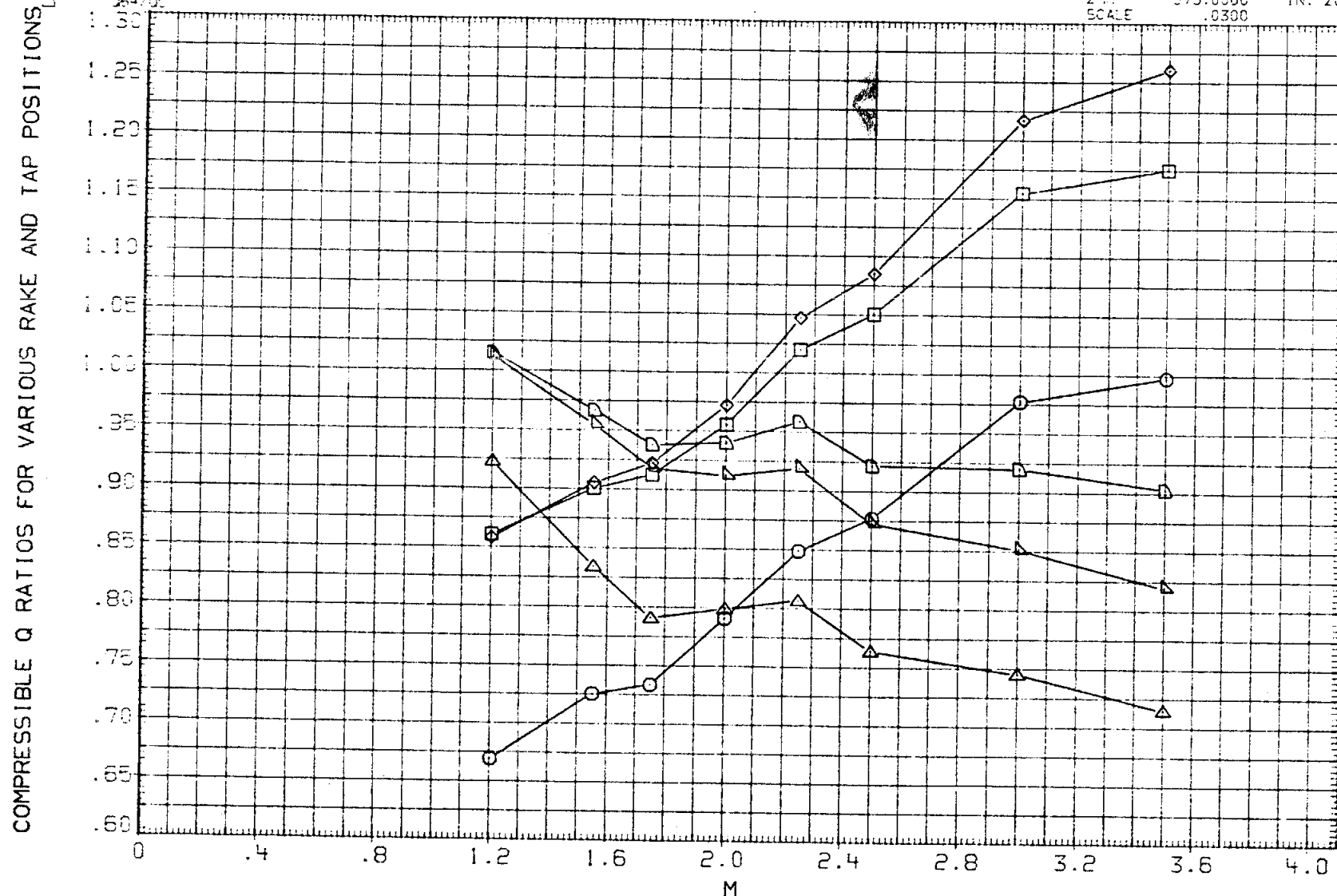


FIG. 27 EFFECT OF POSITION ON COMPRESSIBLE Q RATIO QIJ/QC BOTH RAKES

(IE7B05) ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL	DATA	PARAMETRIC VALUES			
□	021/QC	ALPHA	.000	BETA	.000
△	023/QC	ELEVON	.000	AILRON	.000
◇	013/QC	BDFLAP	-7.170		
○	052/QC				
▽	054/QC				
◇	064/QC				

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.5800	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

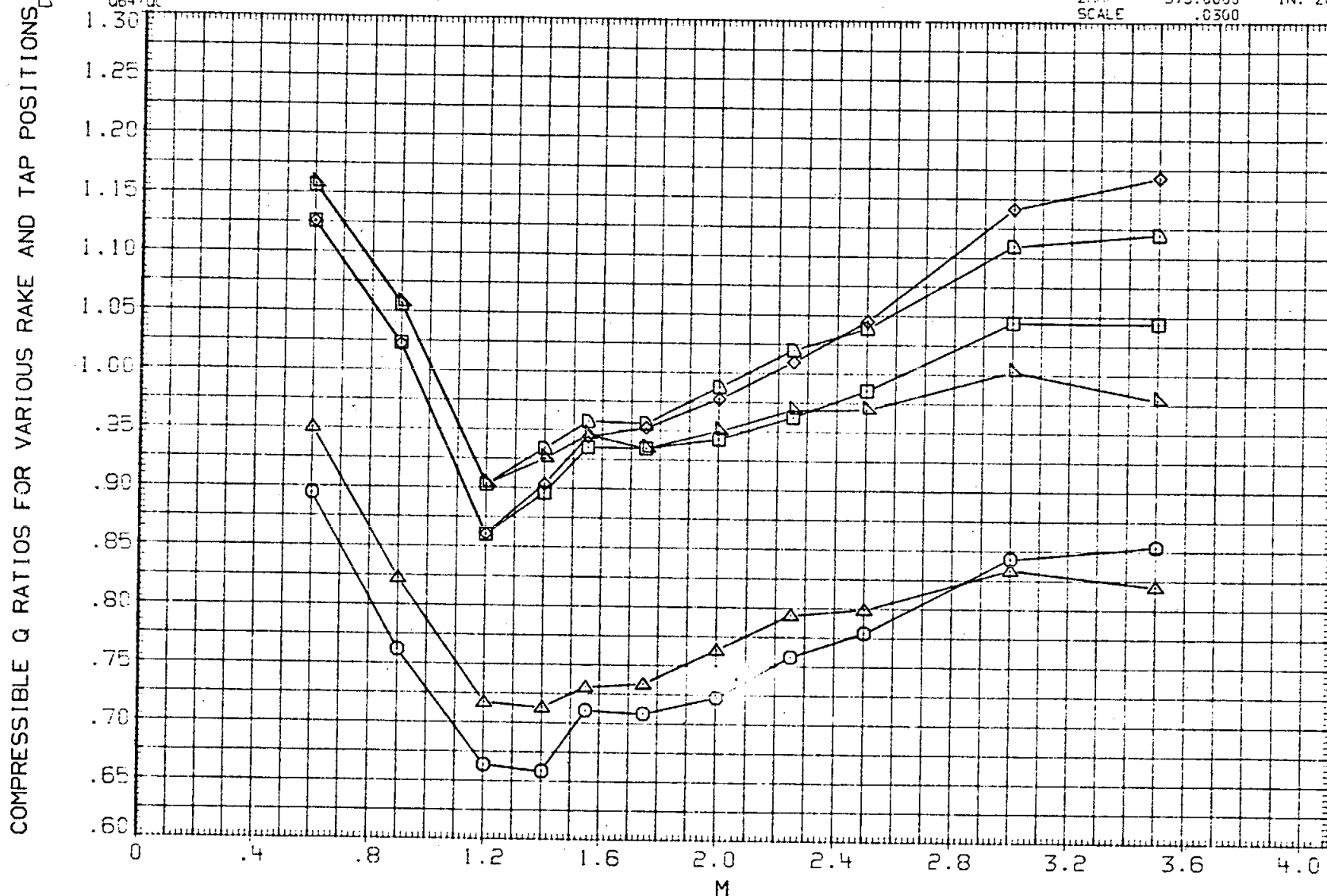


FIG. 27 EFFECT OF POSITION ON COMPRESSIBLE Q RATIO Q1J/QC BOTH RAKES

SYMBOL DATA PARAMETRIC VALUES

021/0C	ALPHA	6.000	BETA	.000
023/0C	ELEVON	.000	AILRON	.000
013/0C	BOFLAP	-7.170		
052/0C				
054/0C				
064/0C				

REFERENCE INFORMATION

SREF	2690.0000	50. FT.
LRREF	474.0000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

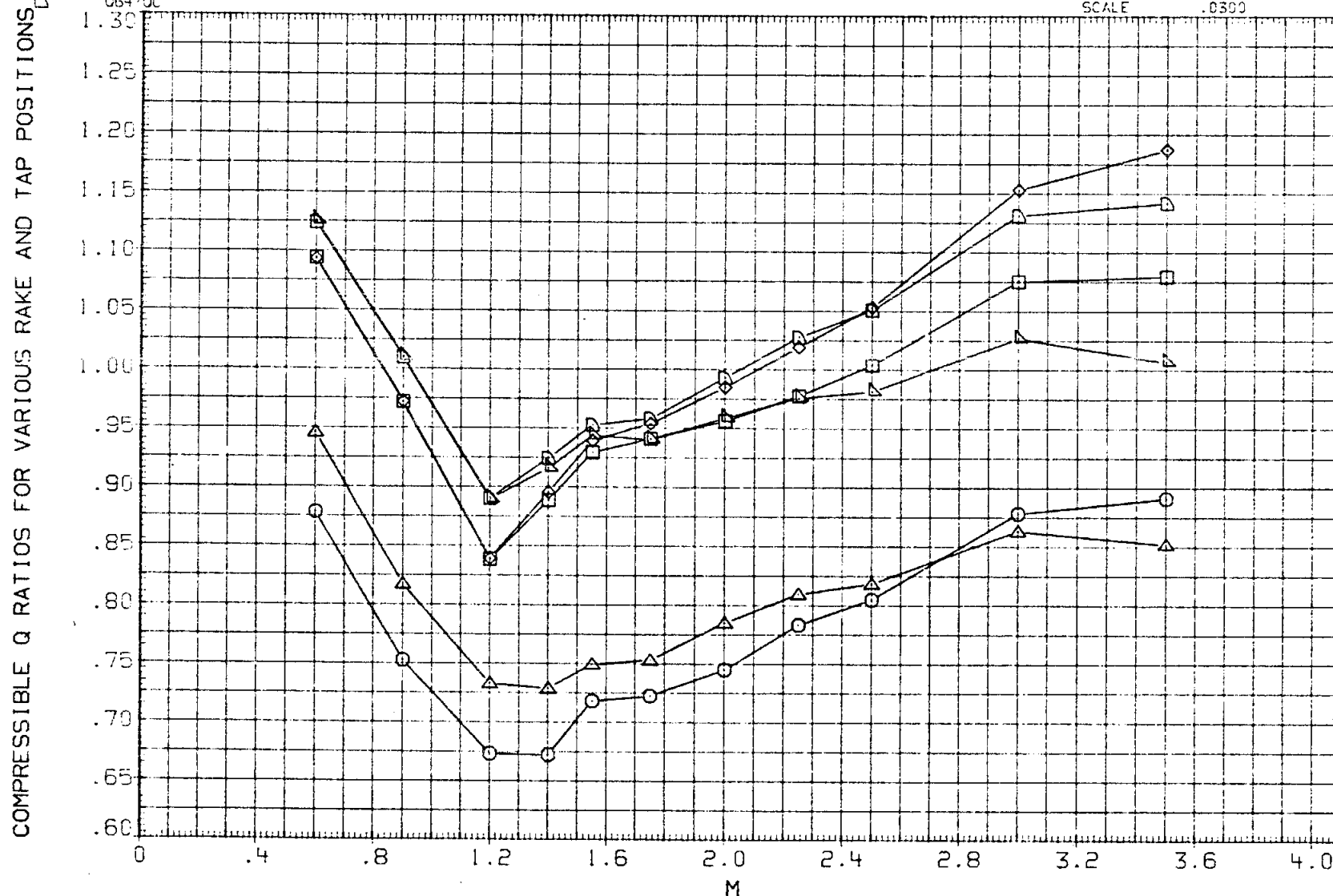


FIG. 27 EFFECT OF POSITION ON COMPRESSIBLE Q RATIO QIJ/QC BOTH RAKES

(IE7B05) ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL	DATA	PARAMETRIC VALUES	
Q31/QC	ALPHA	12.000	BETA .000
Q23/QC	ELEVON	.000	AILRON .000
Q13/QC	BOFLAP	-7.170	
Q52/QC			
Q54/QC			
Q54/QC			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

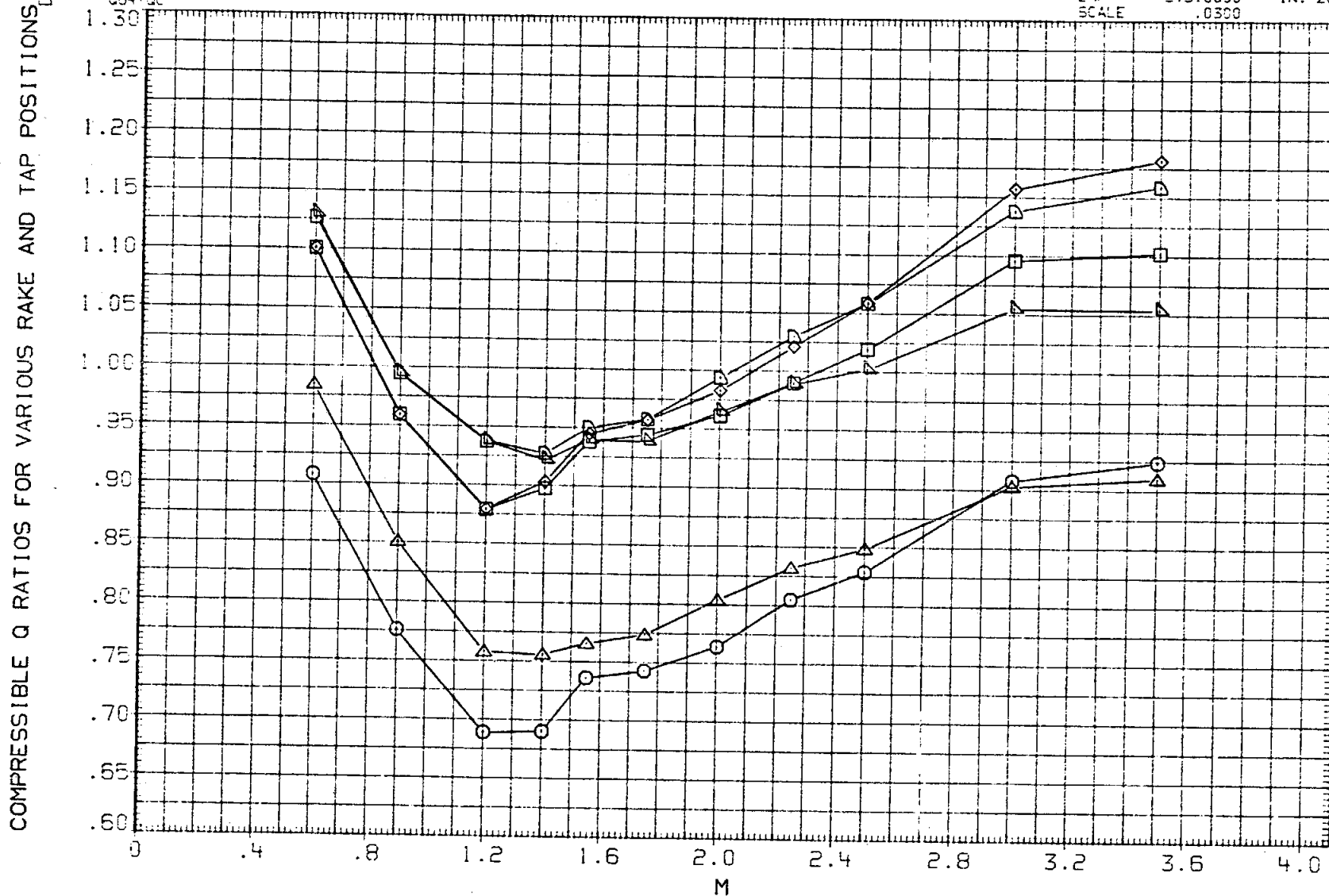
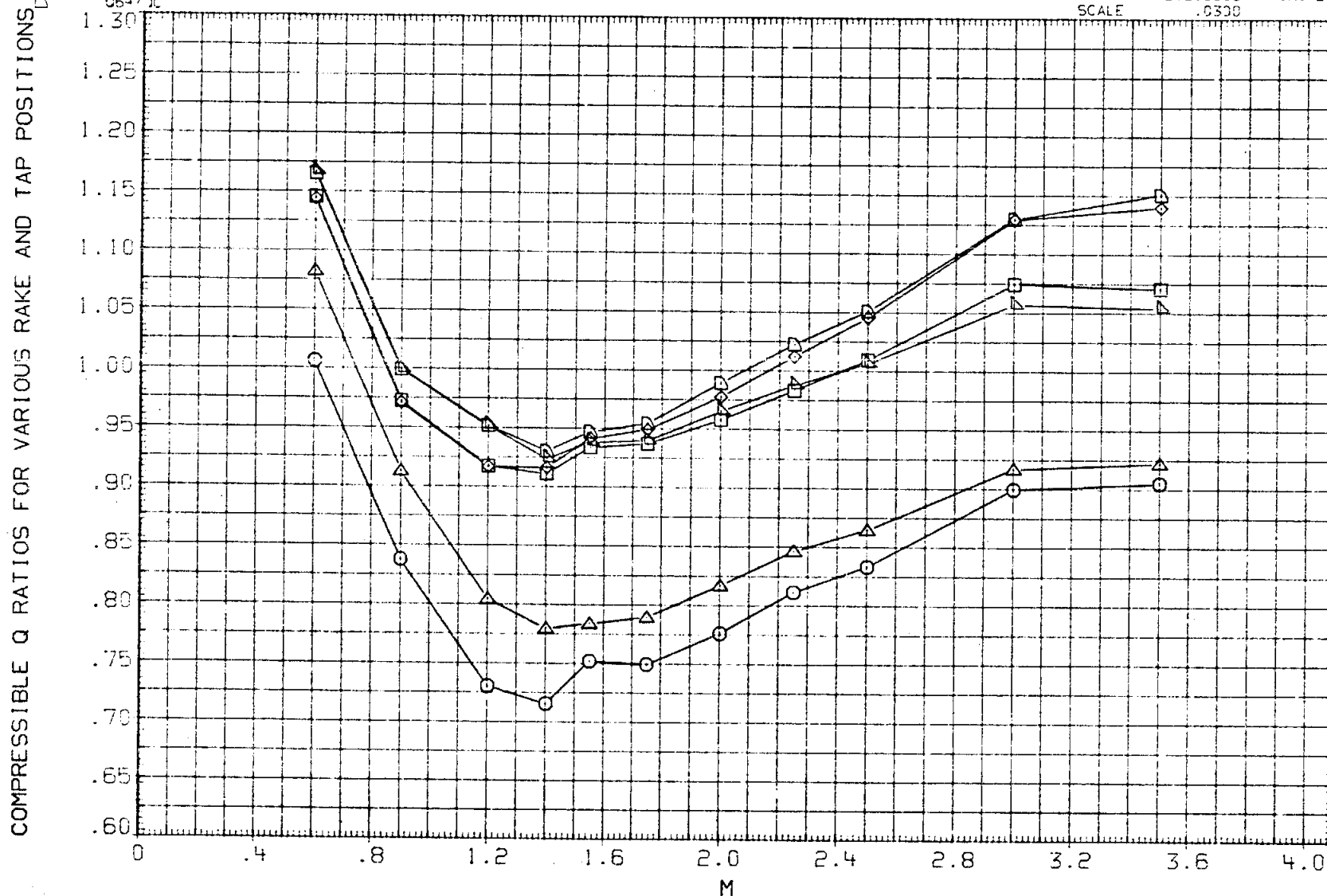


FIG. 27 EFFECT OF POSITION ON COMPRESSIBLE Q RATIO Q1J/QC BOTH RAKES

SYMBOL	DATA	PARAMETRIC VALUES		
Q21/QC	ALPHA	18.000	BETA	.000
Q23/QC	ELEVON	.000	AILRON	.000
Q13/QC	BDFLAP	-7.170		
Q52/QC				
Q54/QC				
Q56/QC				

REFERENCE INFORMATION		
SREF	2690.0000	SQ. FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRF	1076.6800	IN. XO
YMRF	.0000	IN. YO
ZMRF	375.0000	IN. ZO
SCALE	.0330	

FIG. 27 EFFECT OF POSITION ON COMPRESSIBLE Q RATIO Q<sub>1J</sub>/Q<sub>C</sub> BOTH RAKES



(IE7B05) ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL	DATA	PARAMETRIC VALUES			
021-00	ALPHA	24.000	BETA	.000	
023-00	ELEVON	.000	AILRON	.000	
013-00	BDFLAP	-7.170			
052-00					
054-00					
054-00					

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

COMPRESSIBLE Q RATIOS FOR VARIOUS RAKE AND TAP POSITIONS

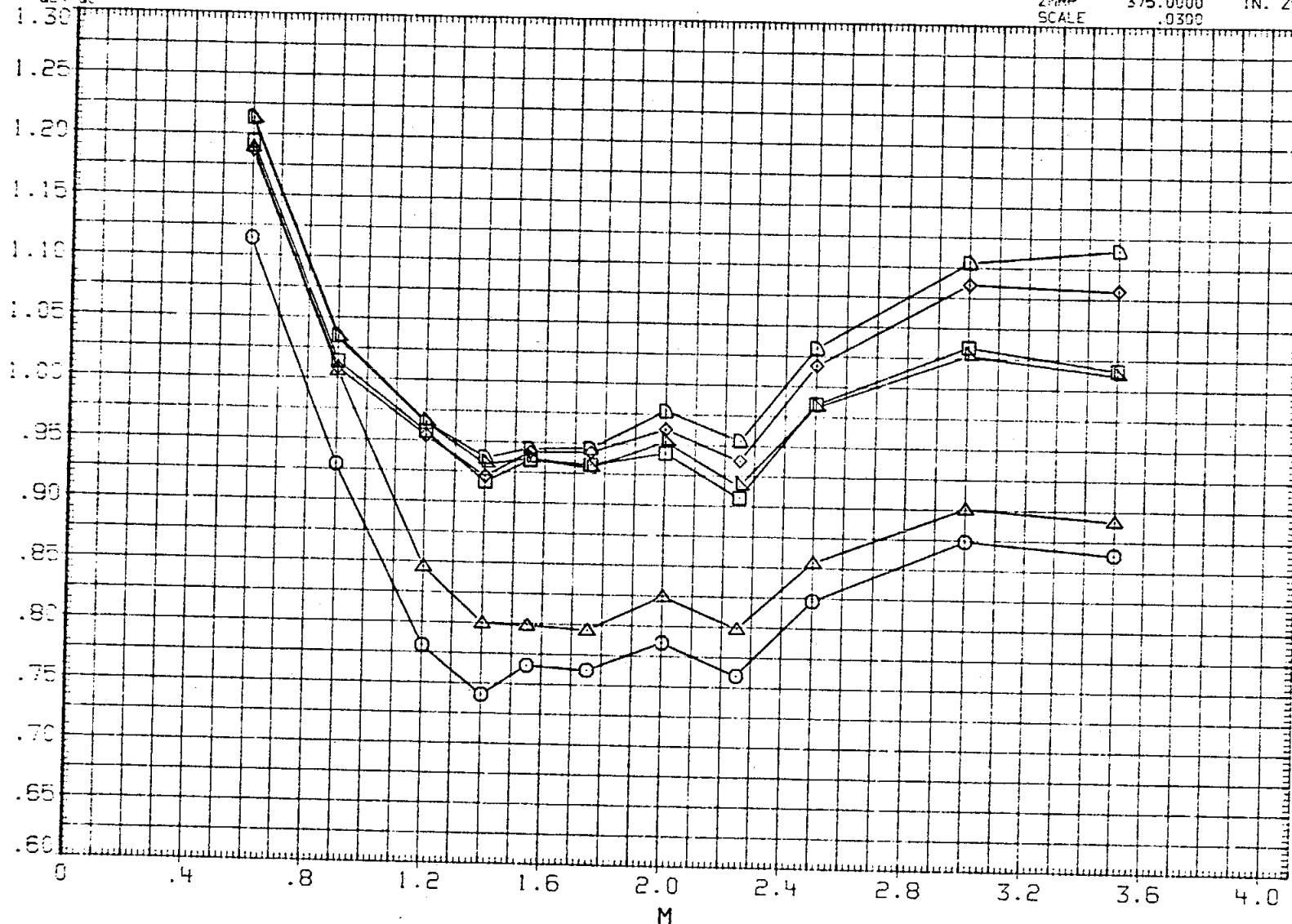


FIG. 27 EFFECT OF POSITION ON COMPRESSIBLE Q RATIO QIJ/QC BOTH RAKES

SYMBOL	DATA	PARAMETRIC VALUES
Q21/QC	ALPHA	.000
Q23/QC	ELEVON	.000
Q13/QC	BOFLAP	-7.170
Q52/QC	BETA	5.000
Q54/QC	AILRON	.000
Q54/QC		

REFERENCE INFORMATION		
SREF	2690.0000	50. FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

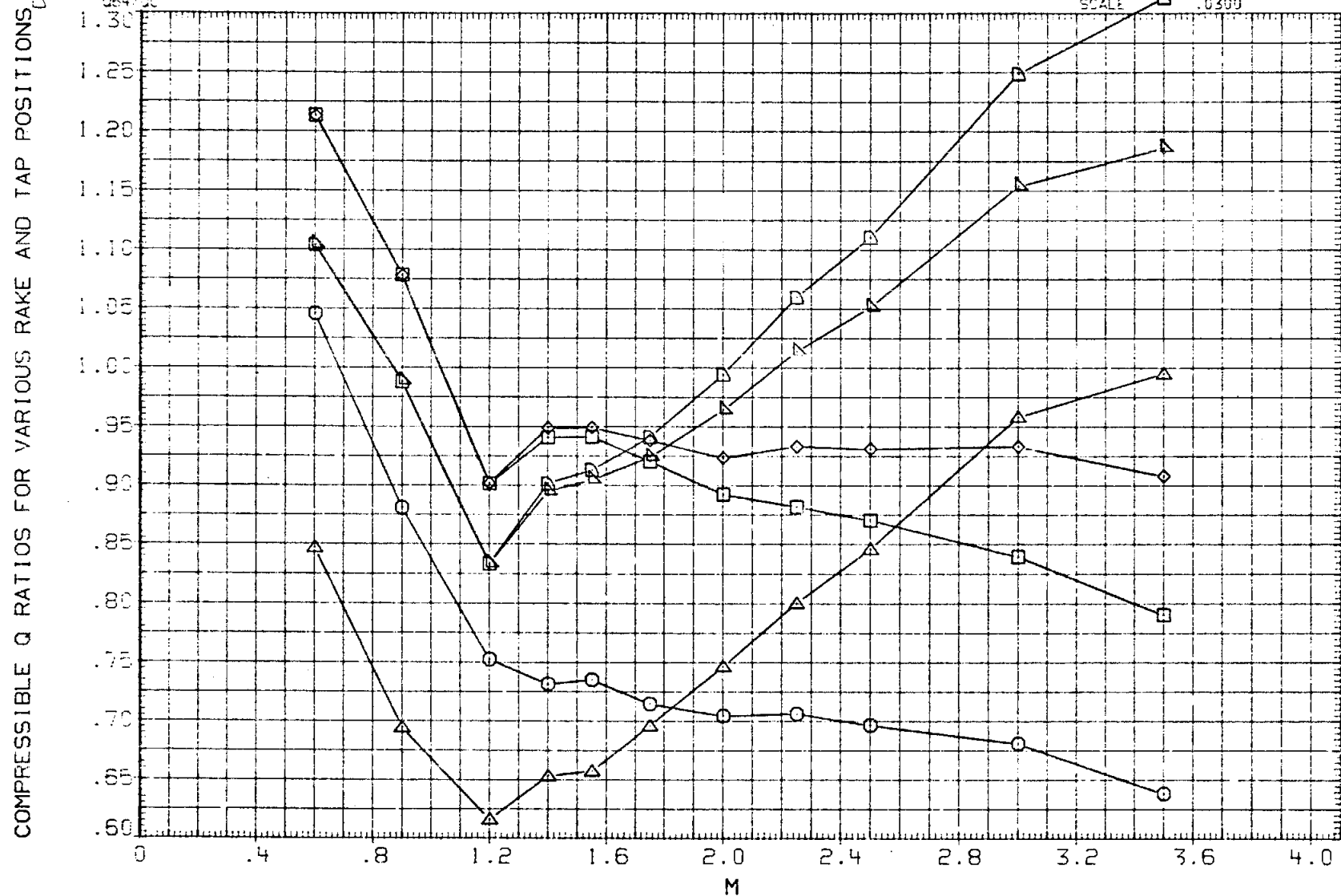


FIG. 27 EFFECT OF POSITION ON COMPRESSIBLE Q RATIO Q1J/QC BOTH RAKES

(IE7B07) ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL

DATA

PARAMETRIC VALUES

Q21/QC  
Q23/QC  
Q13/QC  
Q52/QC  
Q54/QC  
Q54/QC

ALPHA  
ELEVON  
BOFLAP

6.000  
.000  
-7.170

BETA  
AILRON

5.000  
.000

REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

COMPRESSIBLE Q RATIOS FOR VARIOUS RAKE AND TAP POSITIONS

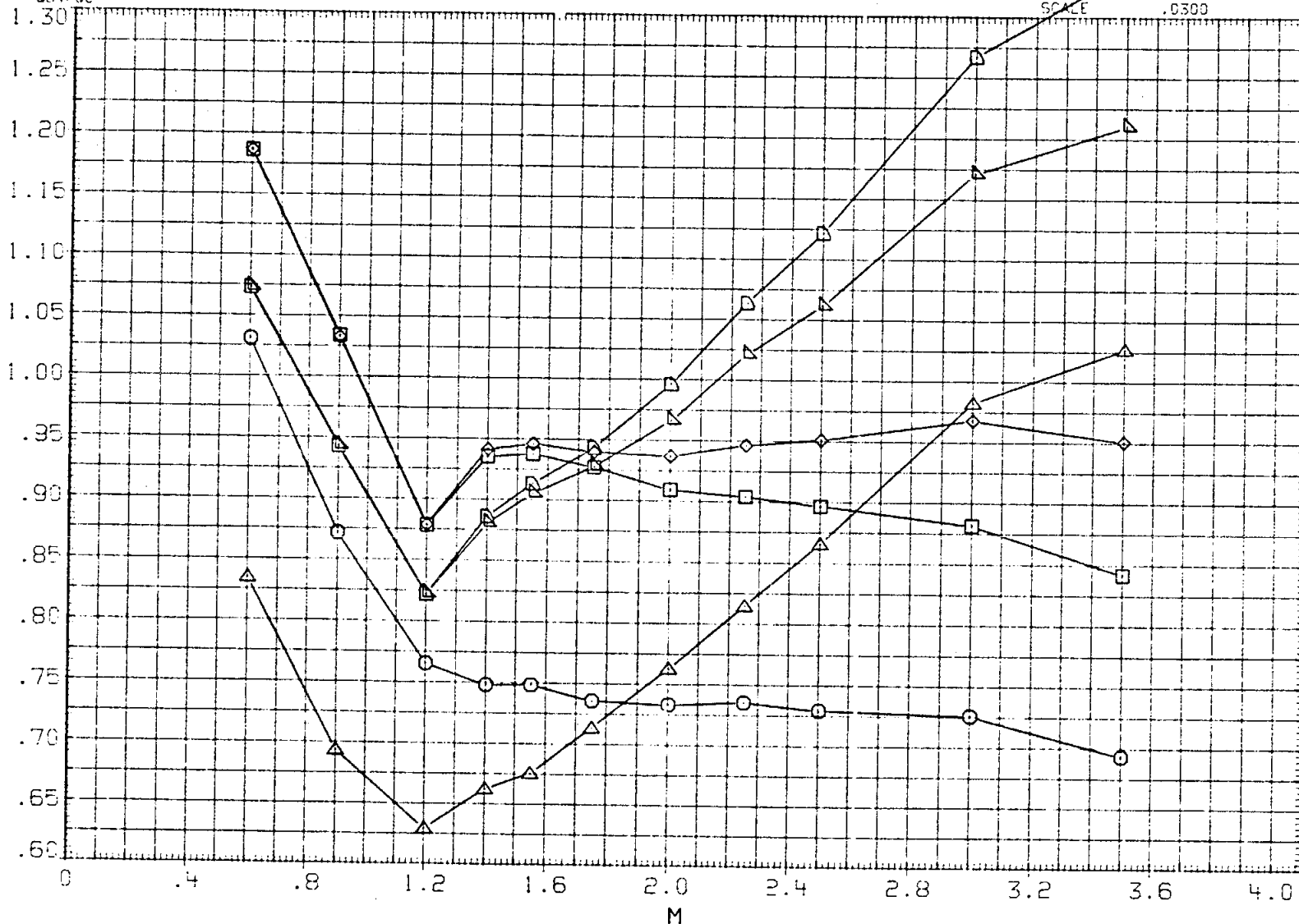


FIG. 27 EFFECT OF POSITION ON COMPRESSIBLE Q RATIO Q1J/QC BOTH RAKES

SYMBOL

DATA

PARAMETRIC VALUES

REFERENCE INFORMATION

021/00	ALPHA	12.000	BETA	5.000
023/00	ELEVON	.000	AILPCN	.000
013/00	BOFLAP	-7.170		
052/00				
054/00				
064/00				

SPREF	2690.0000	SL.FT.
LREF	474.8000	IN.
BREF	836.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

COMPRESSIBLE Q RATIOS FOR VARIOUS RAKE AND TAP POSITIONS

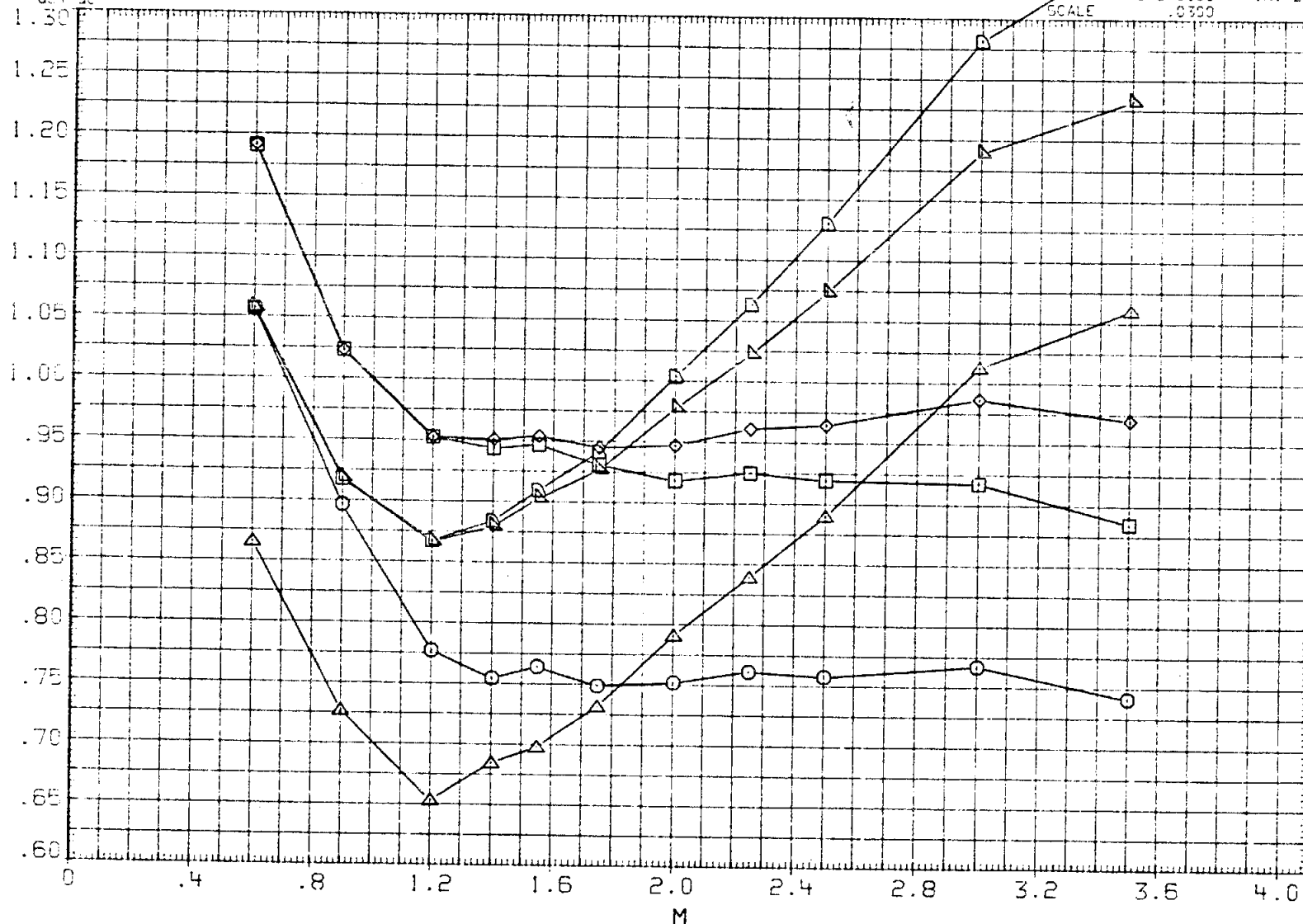


FIG. 27 EFFECT OF POSITION ON COMPRESSIBLE Q RATIO Q1J/QC BOTH RAKES

(IE7B07) ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL	DATA	PARAMETRIC VALUES		
Q21/QC	ALPHA	18.000	BETA	5.000
Q23/QC	ELEVON	.000	AILRON	.000
Q13/QC	BDFLAP	-7.170		
Q52/QC				
Q54/QC				
Q56/QC				

REFERENCE INFORMATION		
SREF	2590.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.9300	

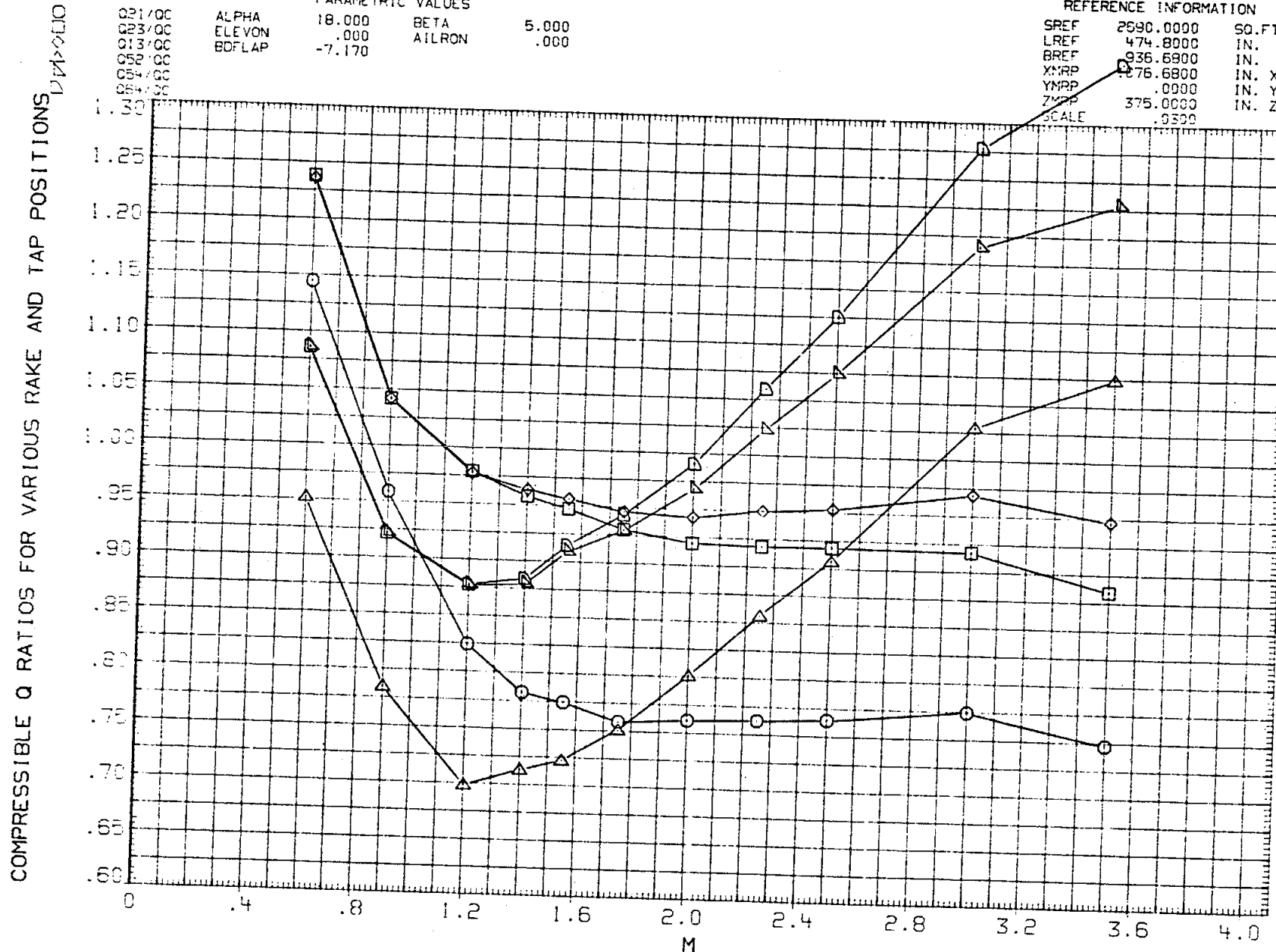


FIG. 27 EFFECT OF POSITION ON COMPRESSIBLE Q RATIO QIJ/QC BOTH RAKES

SYMBOL

DATA

PARAMETRIC VALUES

ALPHA 24.000 BETA 5.000  
ELEVON .000 AIRLON .000  
BOFLAP -7.170

REFERENCE INFORMATION

PREP 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

COMPRESSIBLE Q RATIOS FOR VARIOUS RAKE AND TAP POSITIONS

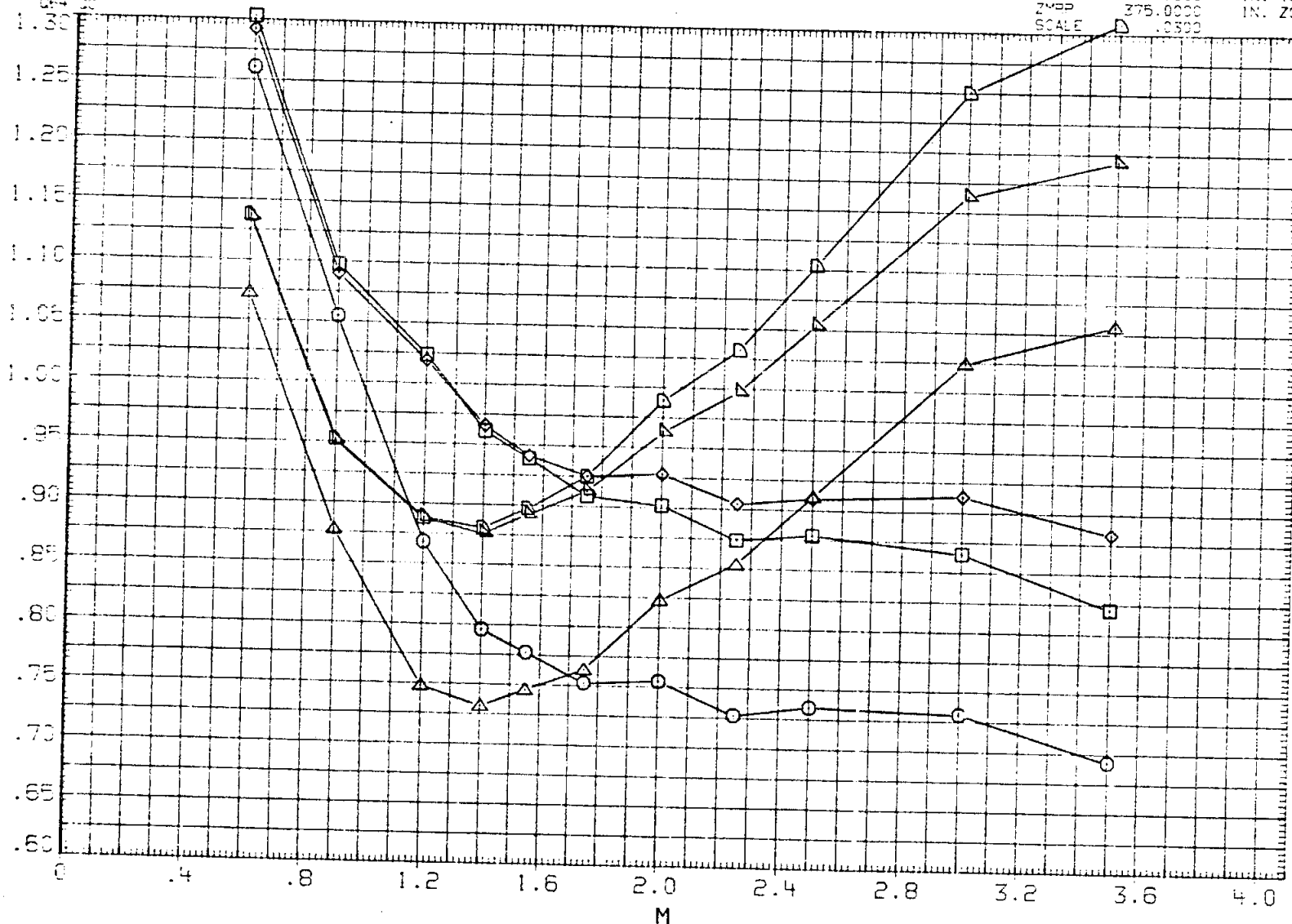


FIG. 27 EFFECT OF POSITION ON COMPRESSIBLE Q RATIO QIJ/QC BOTH RAKES

(IE7D03) ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL	DATA	PARAMETRIC VALUES
DP021	ALPHA	.000
DP023	ELEVON	.000
DP013	BDFLAP	-7.170
DP052	BETA	-5.000
DP054	AILRON	.000
DP064		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

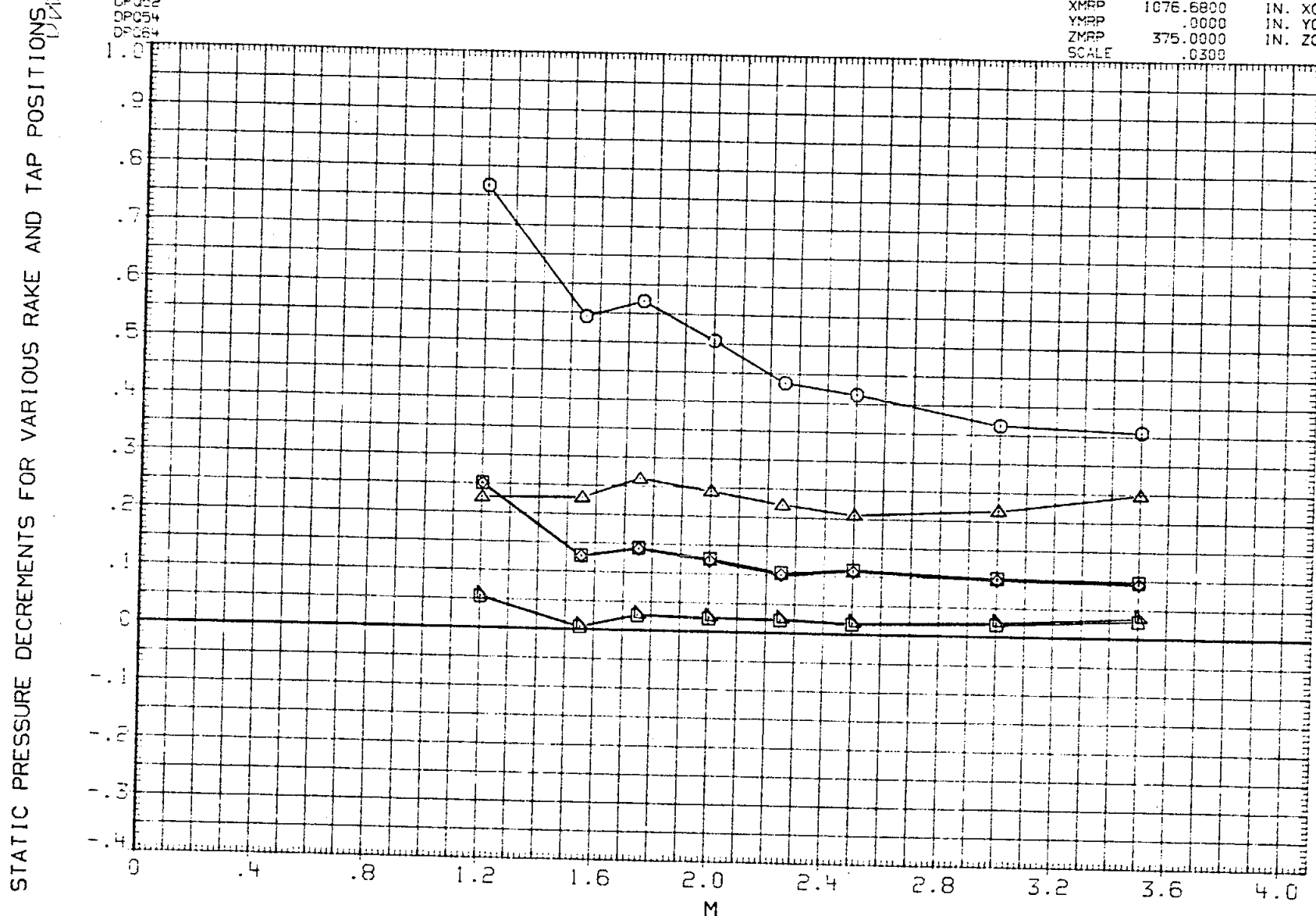


FIG. 28 EFFECT OF POSITION ON STATIC P. DECREMENT PSJ-P / QIU BOTH RAKES

SYMBOL

DATA

PARAMETRIC VALUES

DP021	ALPHA	6.000	BETA	-5.000
DP023	ELEVON	.000	AILRON	.000
DP013	BCFLAP	-7.170		
DP032				
DP014				
DP054				

REFERENCE INFORMATION

SREF	2680.0000	50.00
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

STATIC PRESSURE DECREMENTS FOR VARIOUS RAKE AND TAP POSITIONS

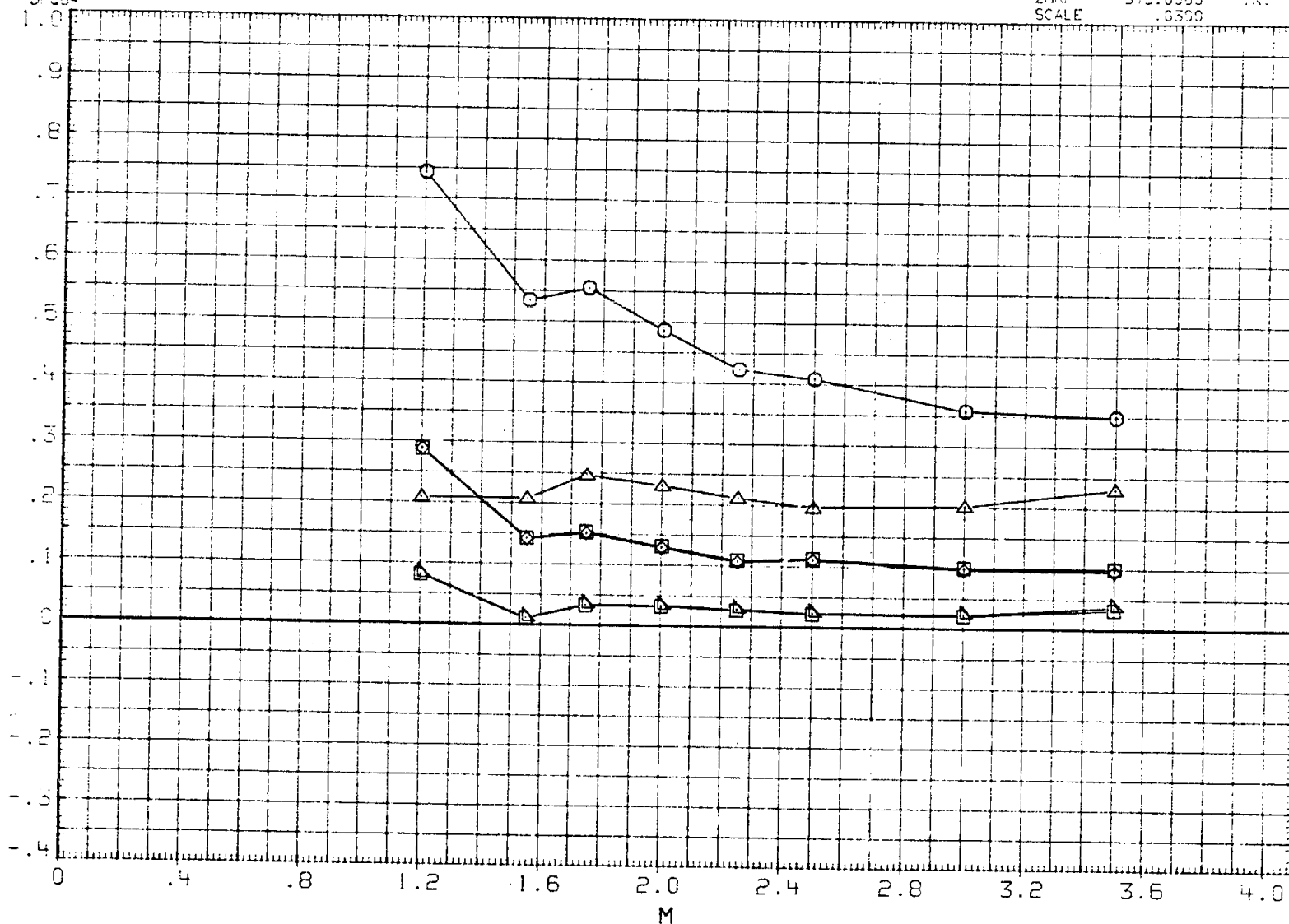


FIG. 28 EFFECT OF POSITION ON STATIC P. DECREMENT  $PSJ-P / Q1J$  BOTH RAKES



(IE7D03) ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL

DATA	PARAMETRIC VALUES			
DP021	ALPHA	12.000	BETA	-5.000
DP023	ELEVON	.000	ATLRON	.000
DP013	BCFLAP	-7.170		
DP052				
DP054				
DP054				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

STATIC PRESSURE DECREMENTS FOR VARIOUS RAKE AND TAP POSITIONS

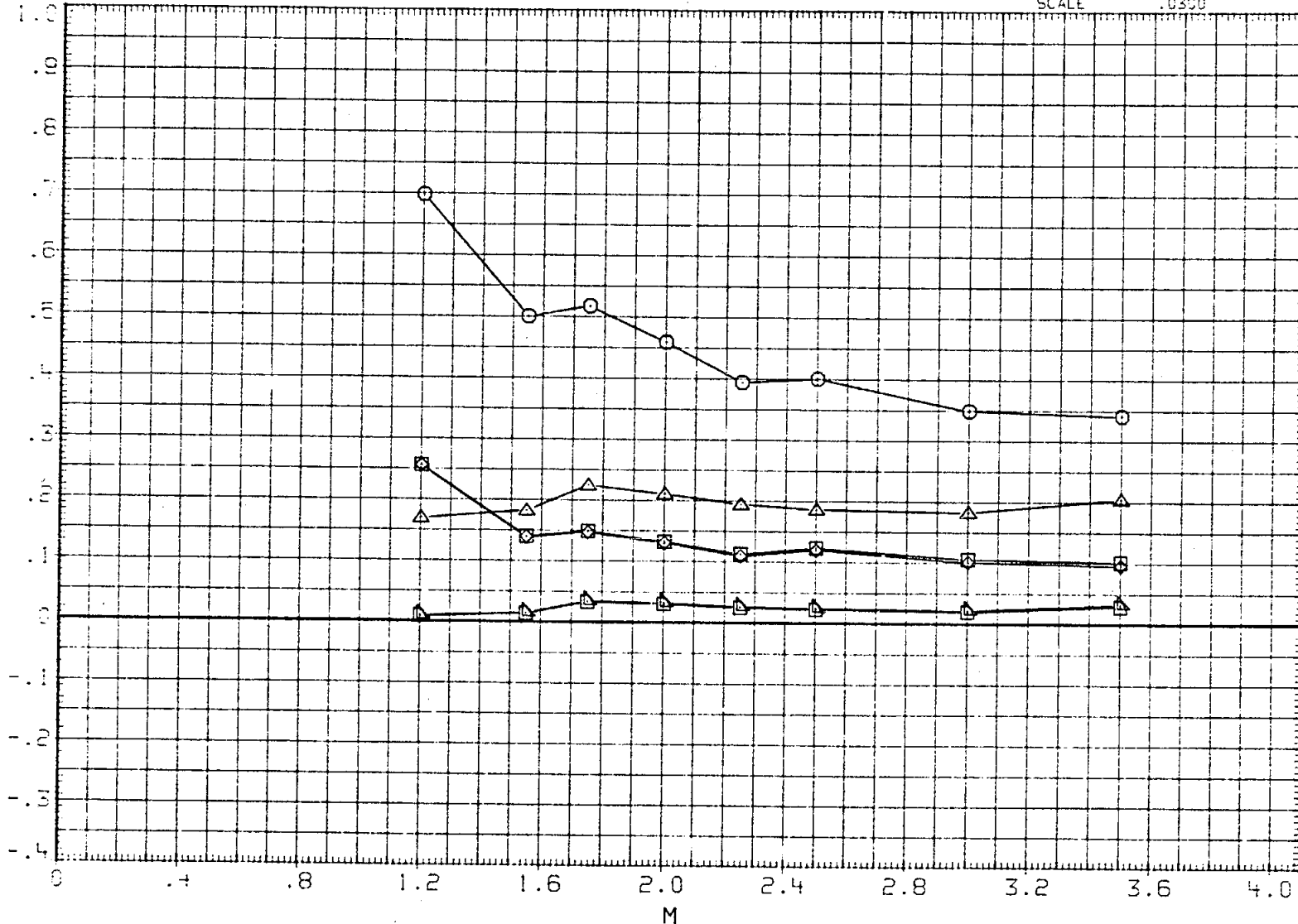


FIG. 28 EFFECT OF POSITION ON STATIC P. DECREMENT PSJ-P /QIJ BOTH RAKES

SYMBOL

DATA

PARAMETRIC VALUES

REFERENCE INFORMATION

DP021 ALPHA 18.000 BETA -5.000  
 DP023 ELEVON .000 AILRON .000  
 DP013 BDFLAP -7.170  
 DP052  
 DP054  
 DP054

SREF 2690.0000 50.00  
 LREF 474.8000 IN.  
 BREF 935.6000 IN.  
 XMPP 1076.6800 IN. XO  
 YMPP .0000 IN. YO  
 ZMPP 375.0000 IN. ZO  
 SCALE .9300

STATIC PRESSURE DECREMENTS FOR VARIOUS RAKE AND TAP POSITIONS

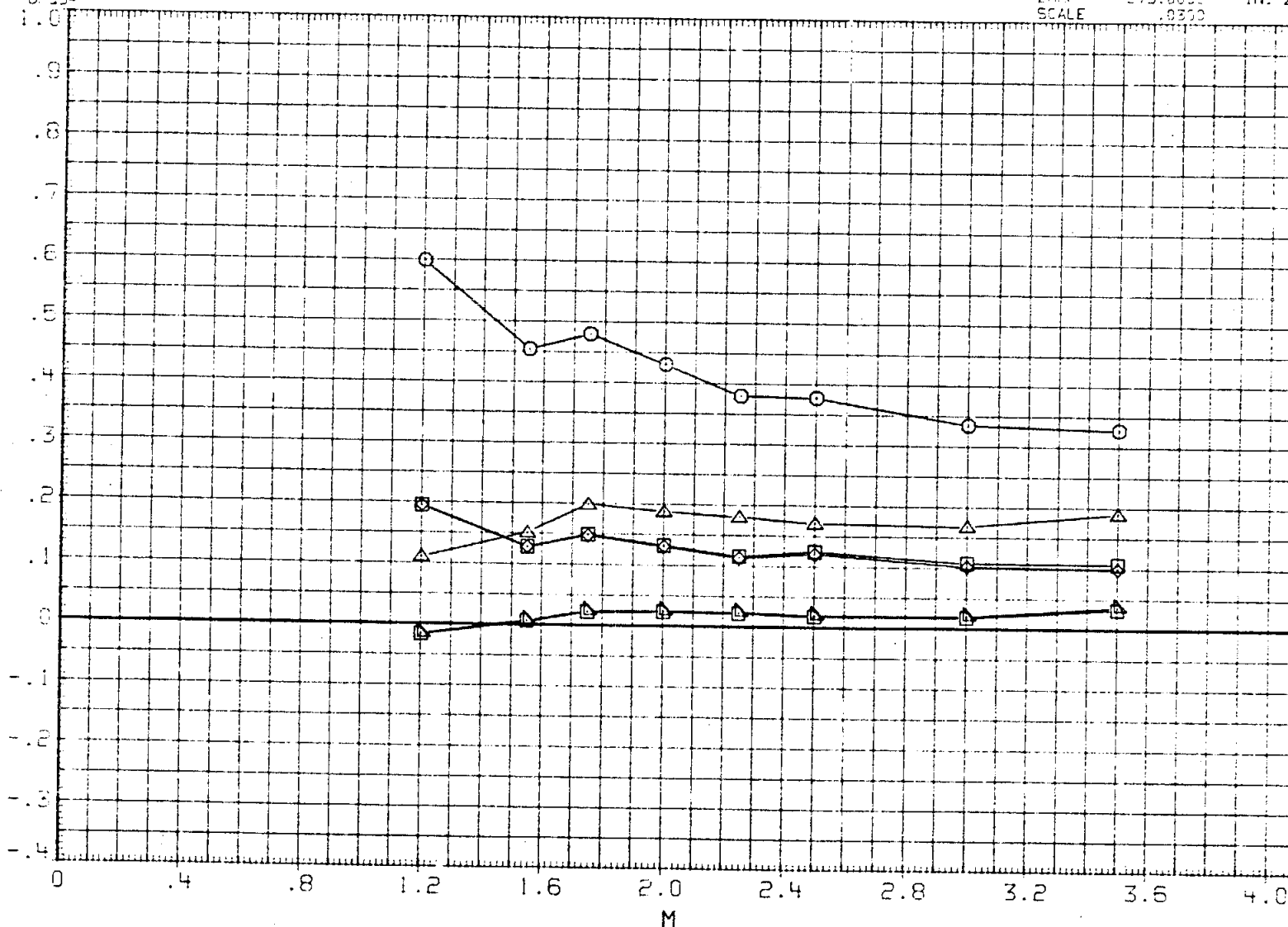


FIG. 28 EFFECT OF POSITION ON STATIC P. DECREMENT PSJ-P / QIJ BOTH RAKES

(IE7D03) ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL

DATA

PARAMETRIC VALUES

DPQ21	ALPHA	24.000	BETA	-5.000
DPQ23	ELEVON	.000	AILRON	.000
DPQ13	BDFLAP	-7.170		

REFERENCE INFORMATION

SREF	2690.0000	SC.FT.
LREF	474.8000	IN.
BREF	936.6000	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

STATIC PRESSURE DECREMENTS FOR VARIOUS RAKE AND TAP POSITIONS

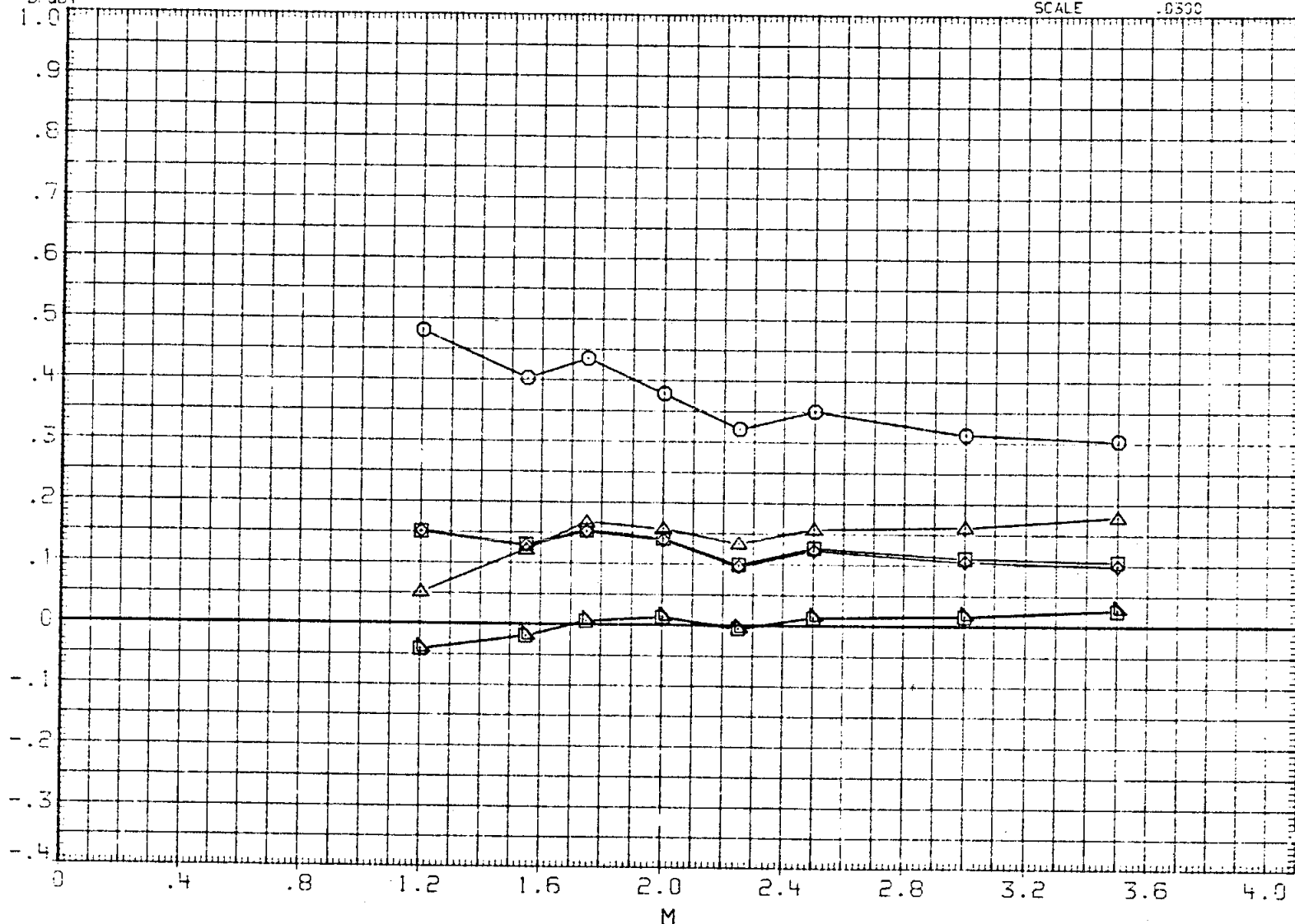


FIG. 28 EFFECT OF POSITION ON STATIC P. DECREMENT PSJ-P / QIJ BOTH RAKES

SYMBOL

DATA

PARAMETRIC VALUES

SYMBOL	DATA	PARAMETRIC VALUES
DP021	ALPHA	.000
DP023	ELEVON	.000
DP013	BDFLAP	-7.179
DP052	BETA	.000
DP054	AILRON	.000
DP064		

REFERENCE INFORMATION	VALUE	UNIT
SRFF	2880.0000	IN. FT.
LRFF	474.8000	IN.
PRFF	936.6000	IN.
XRFF	1079.6000	IN. XO
YRFF	0000.0000	IN. YO
ZRFF	375.0000	IN. ZO
SCALE	.0000	

STATIC PRESSURE DECREMENTS FOR VARIOUS RAKE AND TAP POSITIONS

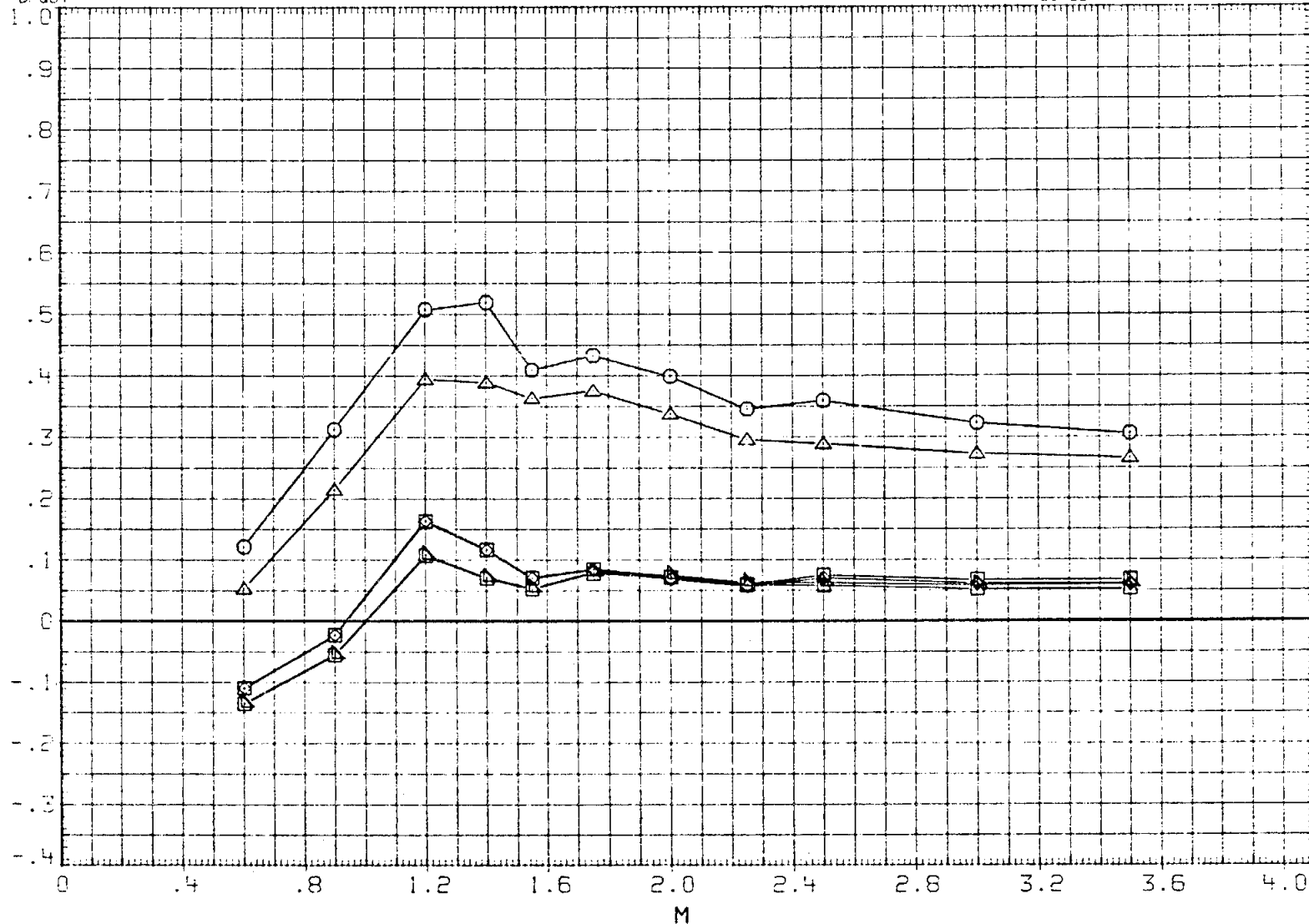


FIG. 28 EFFECT OF POSITION ON STATIC P. DECREMENT PSJ-P / QIJ BOTH RAKES

(1E7D05) ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL	DATA	PARAMETRIC VALUES	
DP021	ALPHA	6.000	BETA .000
DP023	ELEVON	.000	AILRON .000
DP013	BDFLAP	-7.170	
DP052			
DP054			
DP064			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

STATIC PRESSURE DECREMENTS FOR VARIOUS RAKE AND TAP POSITIONS

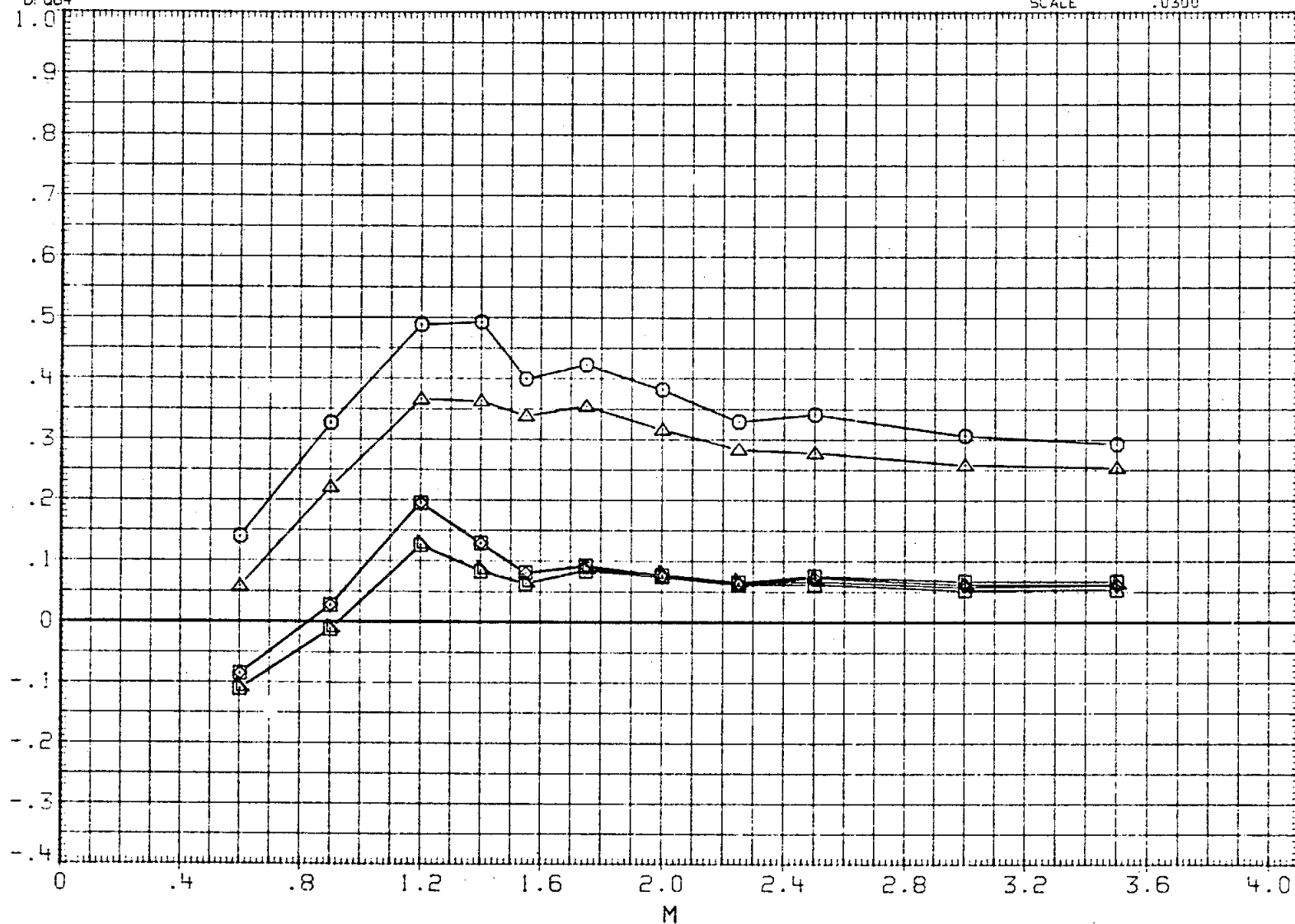


FIG. 28 EFFECT OF POSITION ON STATIC P. DECREMENT PSJ-P / QIJ BOTH RAKES

SYMBOL

DATA

PARAMETRIC VALUES

REFERENCE INFORMATION

DP021	ALPHA	12.000	BETA	.000
DP023	ELEVON	.000	AILRON	.000
DP013	BDCLAP	-7.170		
DP052				
DP054				
DP054				

SREF	2690.0000	SO. 71.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

STATIC PRESSURE DECREMENTS FOR VARIOUS RAKE AND TAP POSITIONS

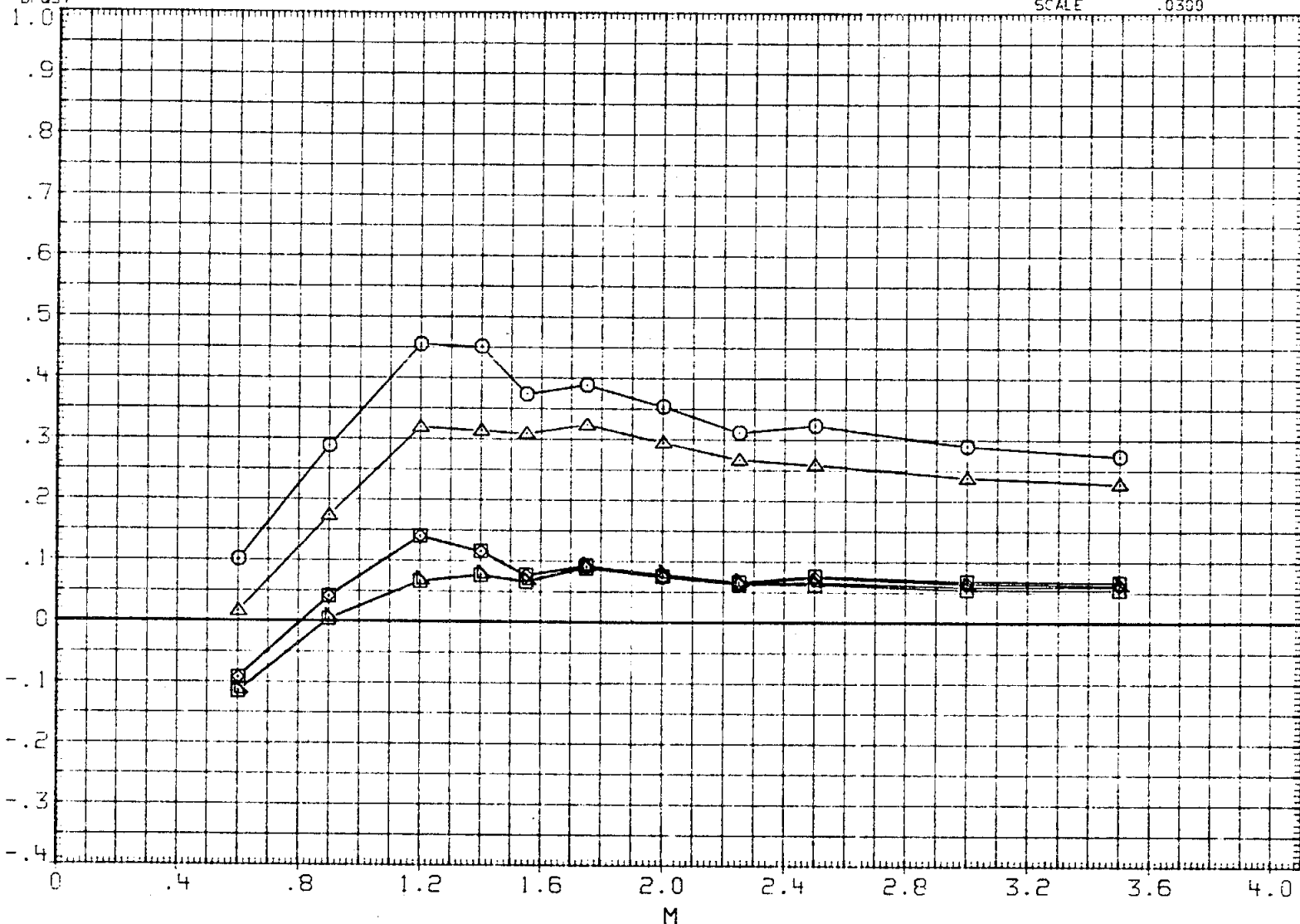


FIG. 28 EFFECT OF POSITION ON STATIC P. DECREMENT PSJ-P / QIJ BOTH RAKES

(1E7D05) ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL	DATA	PARAMETRIC VALUES			
DP021	ALPHA	18.000	BETA	.000	
DP023	ELEVON	.000	AILRON	.000	
DP013	BOFLAP	-7.170			
DP052					
DP054					
DP054					

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

STATIC PRESSURE DECREMENTS FOR VARIOUS RAKE AND TAP POSITIONS

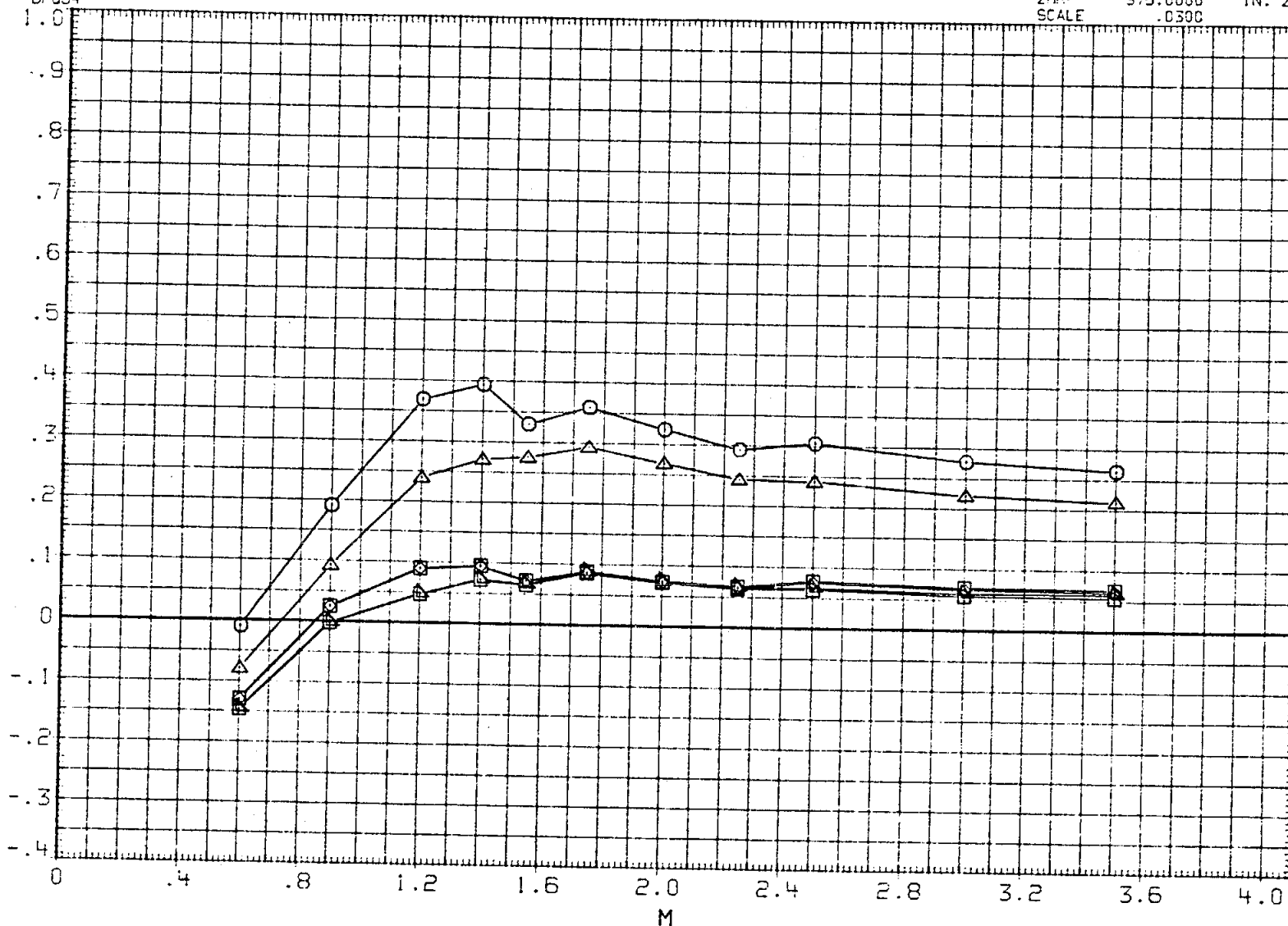


FIG. 28 EFFECT OF POSITION ON STATIC P. DECREMENT PSJ-P / QIJ BOTH RAKES

SYMBOL

DATA PARAMETRIC VALUES

DP021	ALPHA	24.000	BETA	.000
DP023	ELEVON	.000	AILRON	.000
DP013	BDFLAP	-7.170		
DP052				
DP054				
DP054				

REFERENCE INFORMATION

SREF	2690.0000	SC.FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
XMPP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

STATIC PRESSURE DECREMENTS FOR VARIOUS RAKE AND TAP POSITIONS

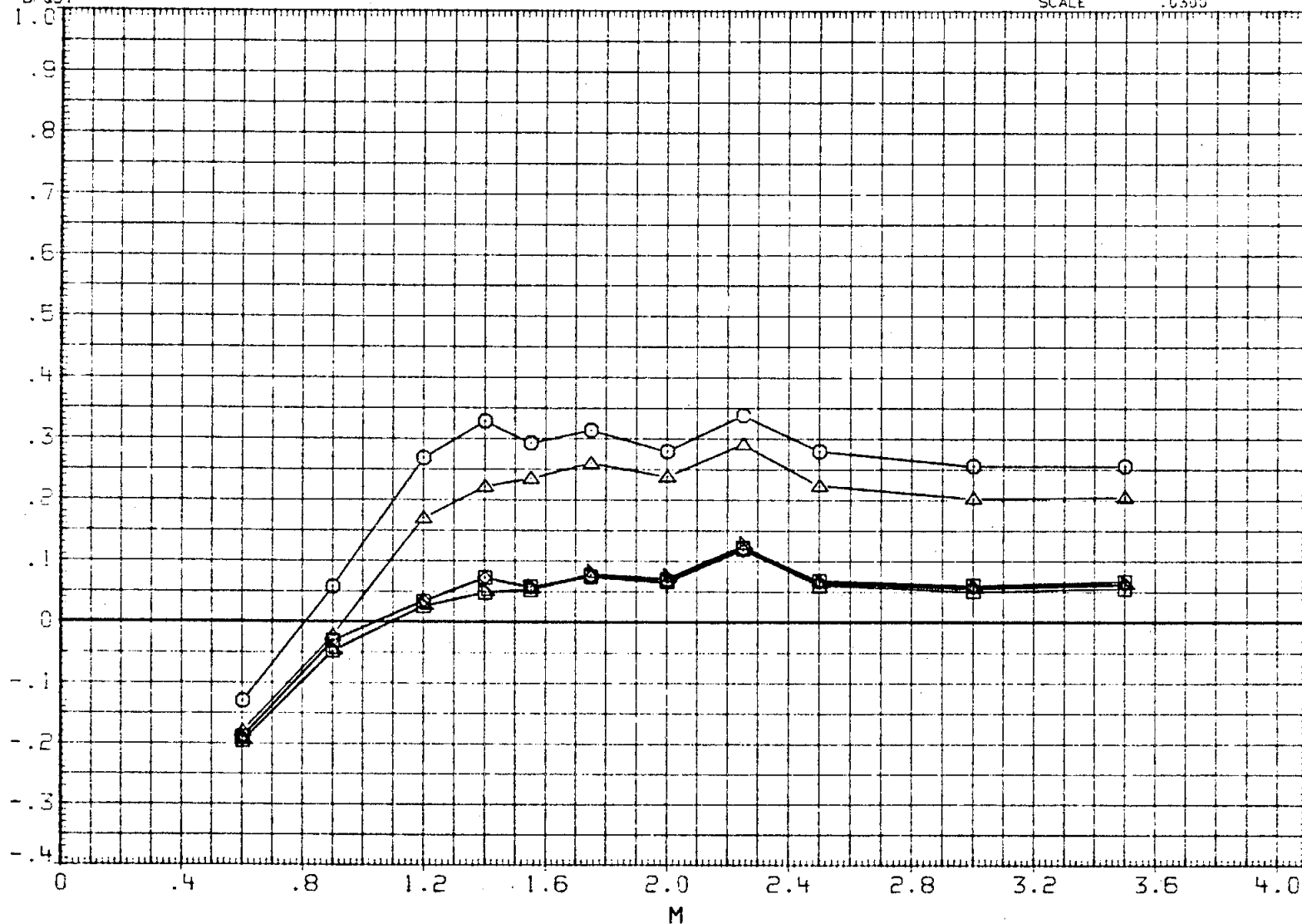


FIG. 28 EFFECT OF POSITION ON STATIC P. DECREMENT PSJ-P / QIJ BOTH RAKES



(IE7D07)

ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL

DATA

PARAMETRIC VALUES

REFERENCE INFORMATION

DPQ21	ALPHA	.000	BETA	5.000
DPQ23	ELEVON	.000	AILRON	.000
DPQ13	BOFLAP	-7.170		
DPQ52				
DPQ54				
DPQ54				

SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	935.5800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

STATIC PRESSURE DECREMENTS FOR VARIOUS RAKE AND TAP POSITIONS

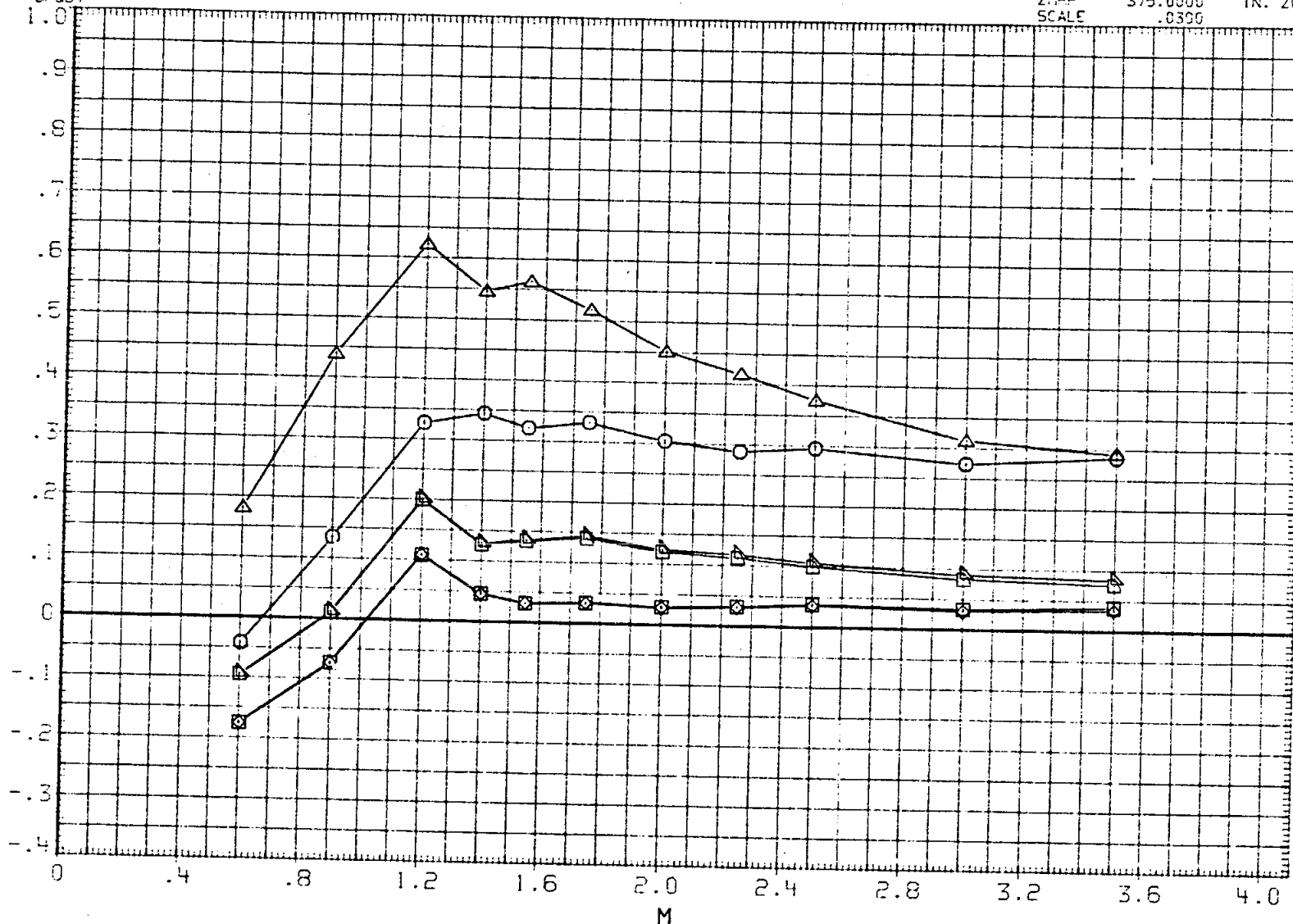


FIG. 28 EFFECT OF POSITION ON STATIC P. DECREMENT PSJ-P / QIJ BOTH RAKES

SYMBOL

DATA

PARAMETRIC VALUES

REFERENCE INFORMATION

DPQ21 ALPHA 6.000  
 DPQ23 ELEVON .000 BETA 5.000  
 DPQ13 BDFLAP -7.170 AILRON .000  
 DPQ22  
 DPQ24  
 DPQ25

SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 935.6000 IN.  
 XMRP 1076.6800 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE .0300

STATIC PRESSURE DECREMENTS FOR VARIOUS RAKE AND TAP POSITIONS

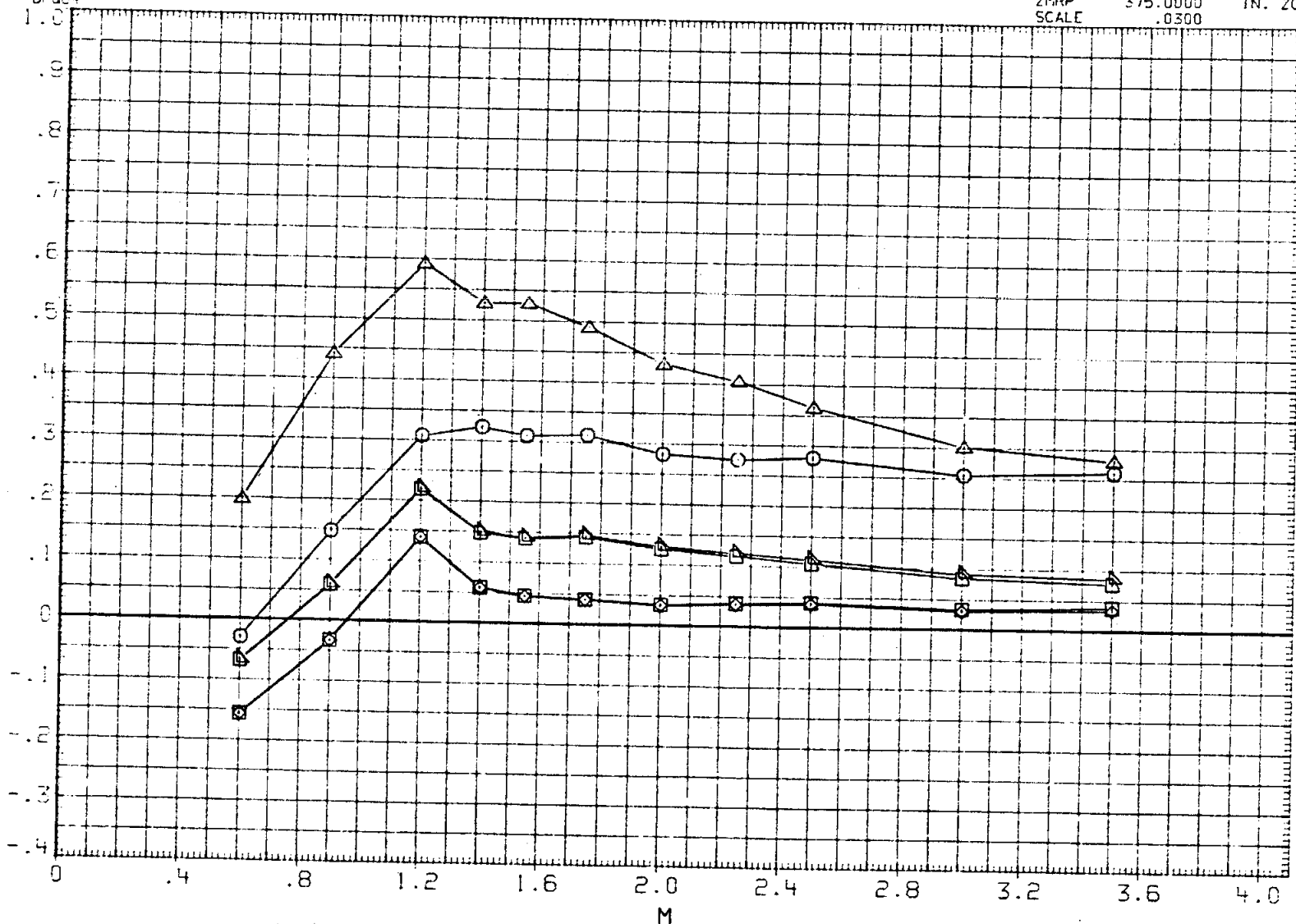


FIG. 28 EFFECT OF POSITION ON STATIC P. DECREMENT PSJ-P / Q1J BOTH RAKES

(1E7D07)

ARC 11-97-87-094 OA161 ORBITER + RAKES

SYMBOL

DATA

PARAMETRIC VALUES

REFERENCE INFORMATION

DPQ21	ALPHA	12.000	BETA	5.000
DPQ23	ELEVON	.000	AILRON	.000
DPQ13	BOFLAP	-7.170		
DPQ52				
DPQ54				
DPQ54				

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

STATIC PRESSURE DECREMENTS FOR VARIOUS RAKE AND TAP POSITIONS

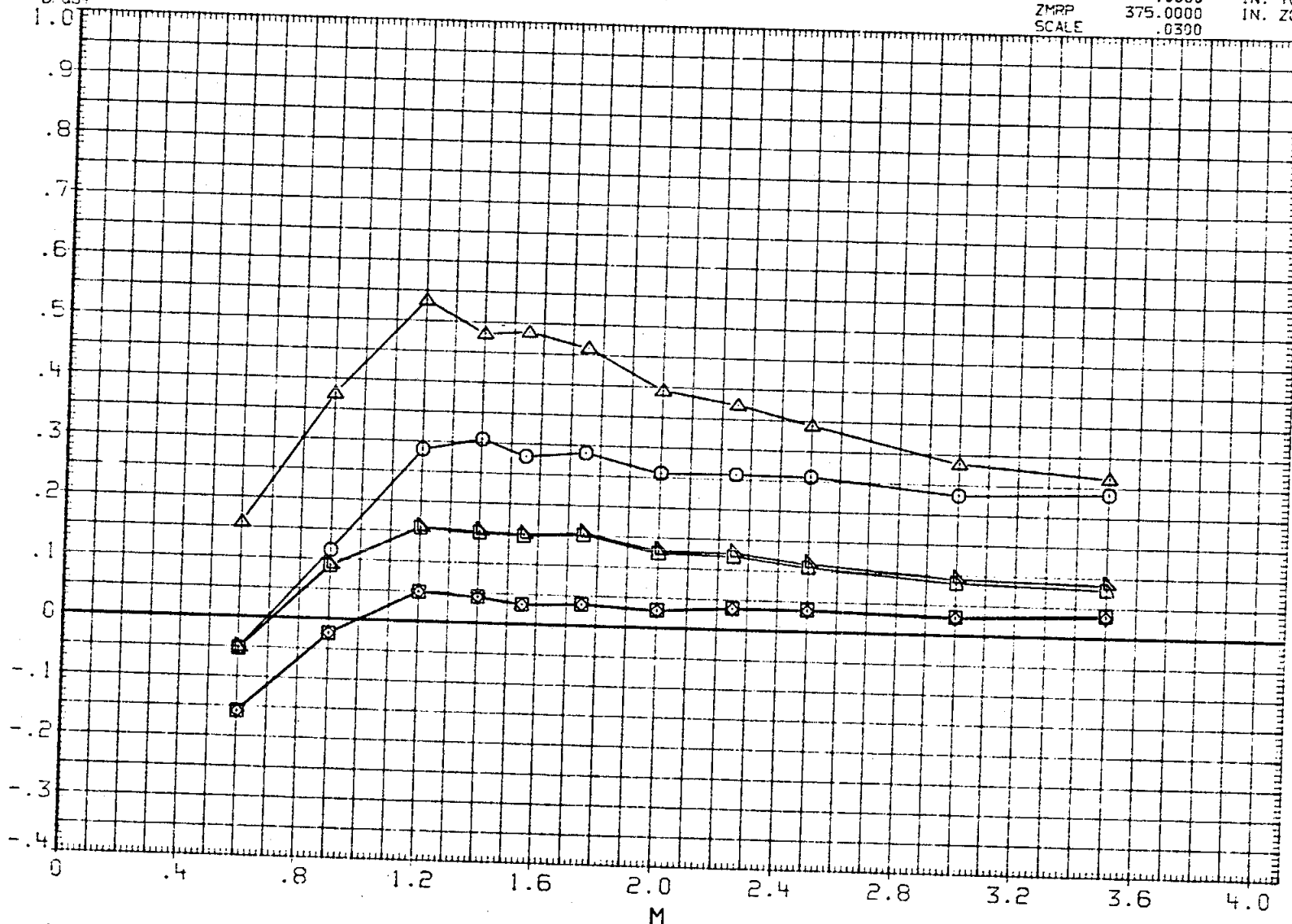


FIG. 28 EFFECT OF POSITION ON STATIC P. DECREMENT PSJ-P / QIJ BOTH RAKES

SYMBOL

DATA

PARAMETRIC VALUES

REFERENCE INFORMATION

DP021 ALPHA 18.000 BETA 5.000  
 DP023 ELEVON .000 AILRON .000  
 DP013 SOFLAP -7.170  
 DP052  
 DP054  
 DP054

SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 935.6800 IN.  
 XMRP 1076.6800 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE .0300

STATIC PRESSURE DECREMENTS FOR VARIOUS RAKE AND TAP POSITIONS

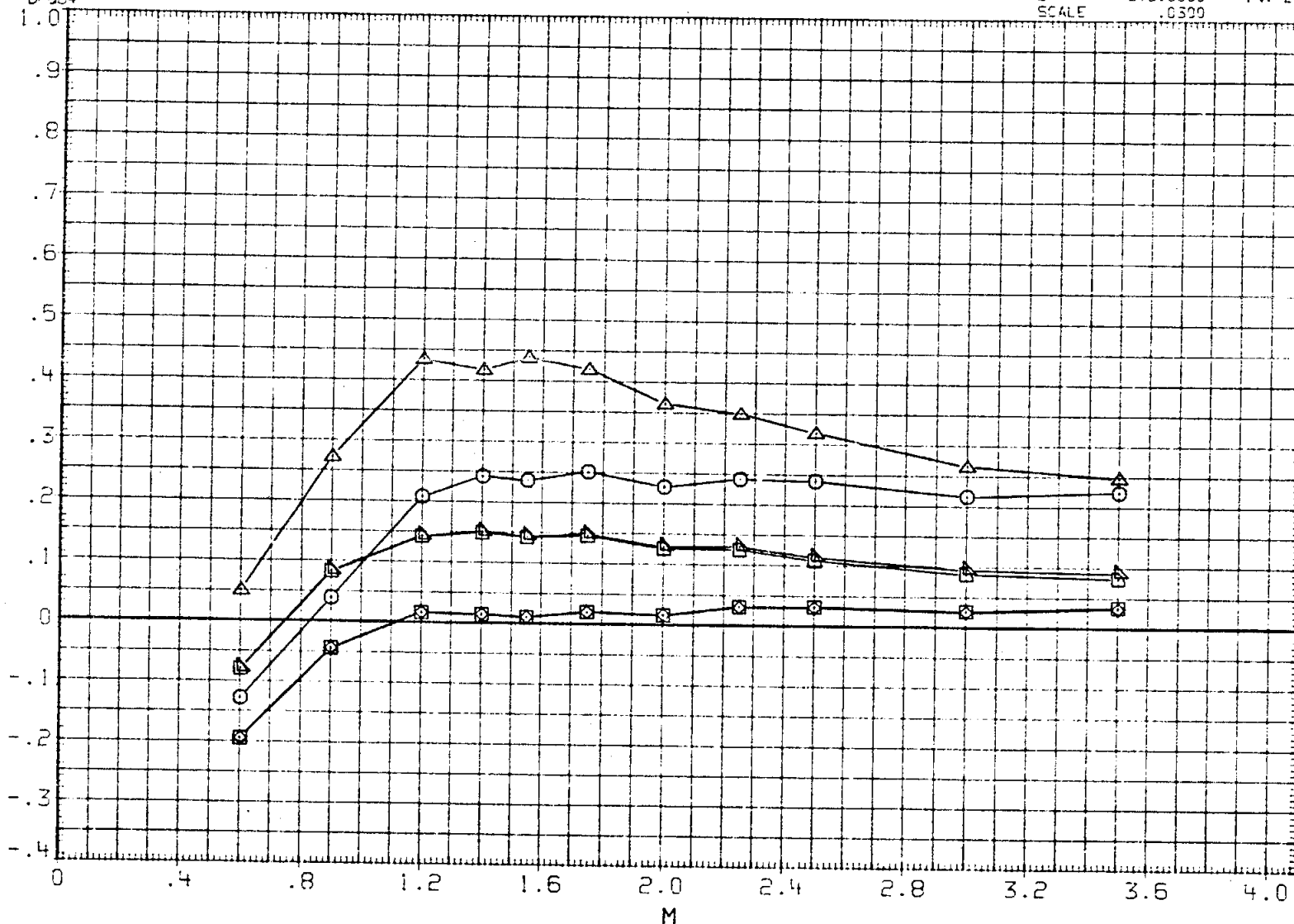


FIG. 28 EFFECT OF POSITION ON STATIC P. DECREMENT PSJ-P / QIJ BOTH RAKES

(IE7D07)

ARC 11-97-87-094 OA161 ORBITER + RAKES

SYMBOL

DATA

PARAMETRIC VALUES

REFERENCE INFORMATION

DPQ21  
DPQ23  
DPQ13  
DPQ52  
DPQ54  
DPQ54ALPHA  
ELEVON  
BDFLAP24.000  
.000  
-7.170BETA  
AILRON5.000  
.000

SREF	2690.0000	SO.FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0390	

STATIC PRESSURE DECREMENTS FOR VARIOUS RAKE AND TAP POSITIONS

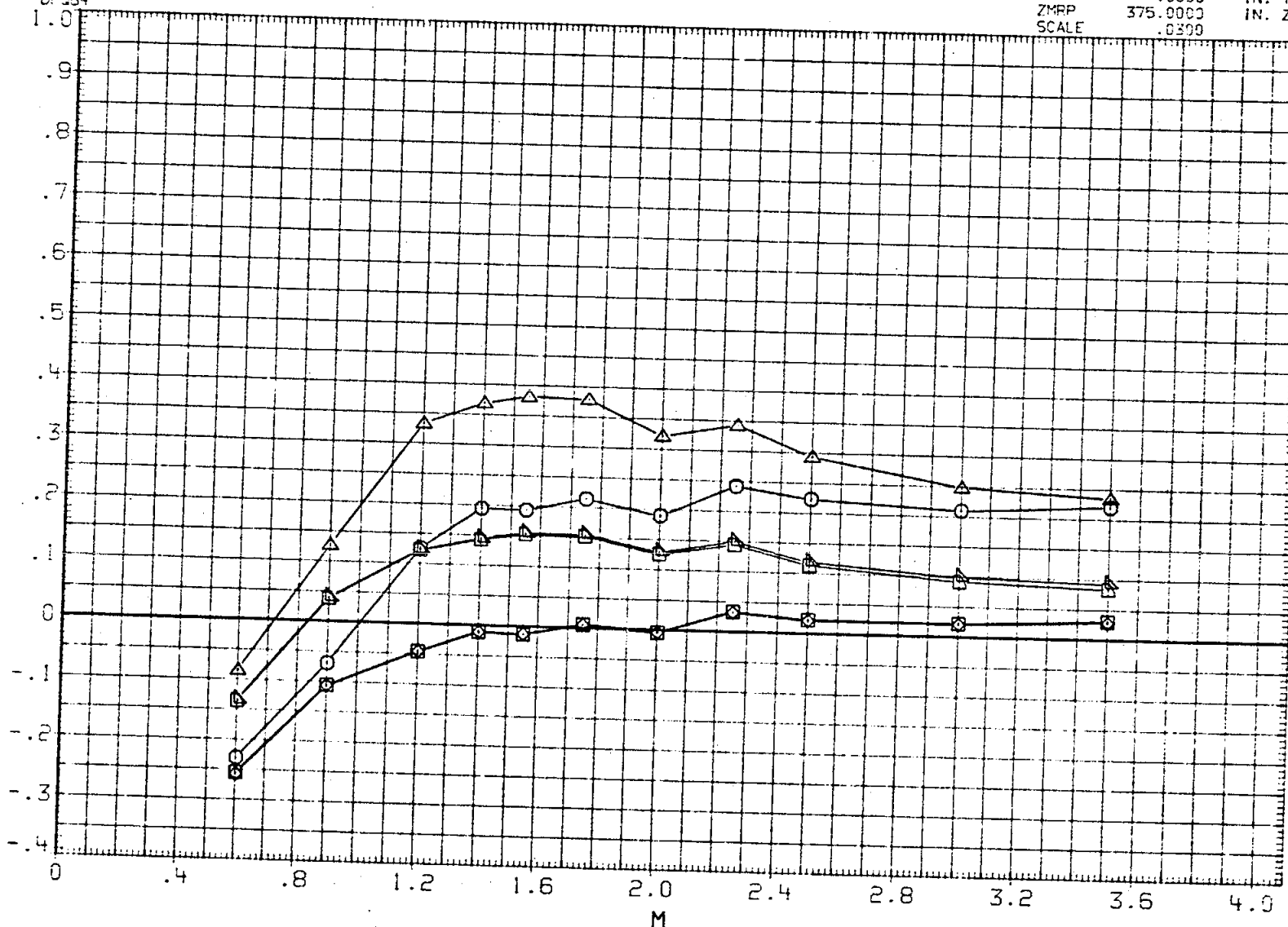


FIG. 28 EFFECT OF POSITION ON STATIC P. DECREMENT PSJ-P / QIU BOTH RAKES

SYMBOL

DATA

PARAMETRIC VALUES

SREF	2690.0000	SG.F7.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

P11/PT	ALPHA	.000	BETA	-5.000
P12/PT	ELEVON	.000	AILRON	.000
P13/PT	BDFLAP	-7.170		
P14/PT				
P15/PT				
P16/PT				

TOTAL PRESSURE RATIOS FOR VARIOUS RAKE POSITIONS

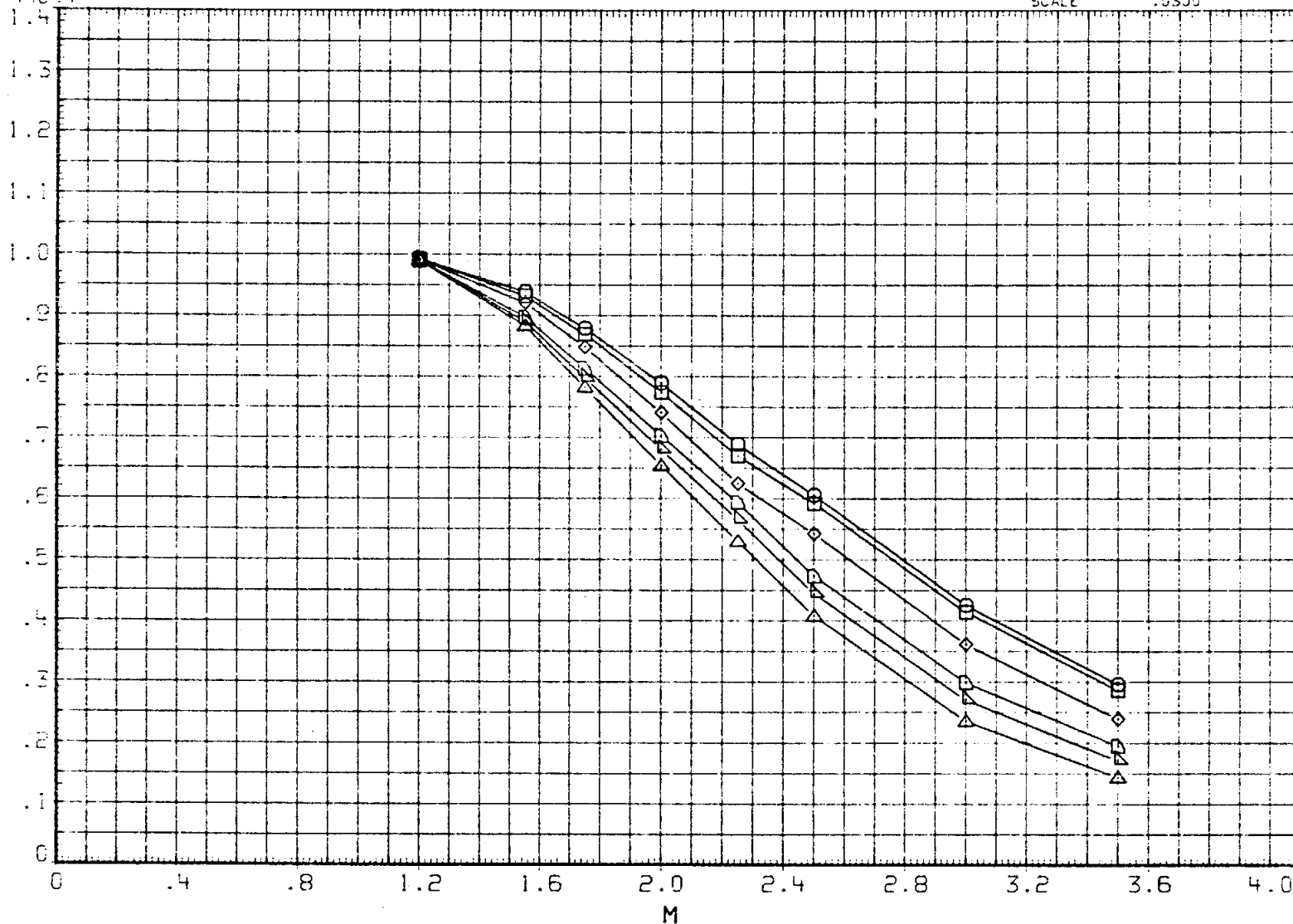


FIG. 29 EFFECT OF POSITION ON TOTAL PRESSURE RATIO PTI/PT BOTH RAKES

(BE7103) ARC 11-97-87-094 OA161 ORBITER + RAKES

SYMBOL	DATA	PARAMETRIC VALUES		
PT1/PT	ALPHA	6.000	BETA	-5.000
PT2/PT	ELEVON	.000	ATLON	.000
PT3/PT	BDFLAP	-7.170		
PT4/PT				
PT5/PT				
PT6/PT				

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

TOTAL PRESSURE RATIOS FOR VARIOUS RAKE POSITIONS

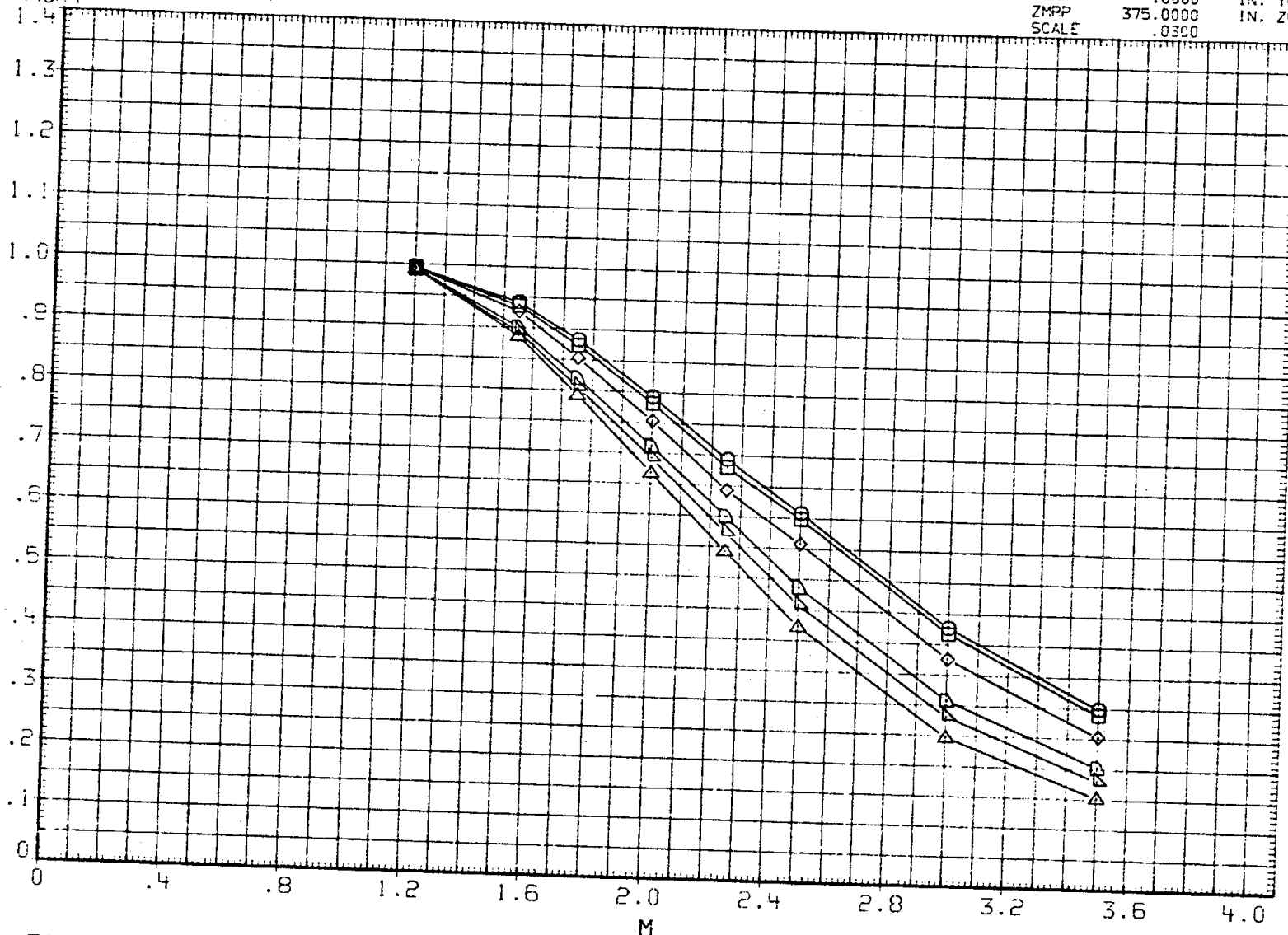


FIG. 29 EFFECT OF POSITION ON TOTAL PRESSURE RATIO PT1/PT BOTH RAKES

SYMBOL

DATA

PARAMETRIC VALUES

PT1/PT	ALPHA	12.000	BETA	-5.000
PT2/PT	ELEVON	.000	AILRON	.000
PT3/PT	BOFLAP	-7.170		
PT4/PT				
PT5/PT				
PT6/PT				

REFERENCE INFORMATION

SREF	2690.0000	SO.FT.
LREF	474.8000	IN.
BREF	936.6000	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.6000	IN. ZO
SCALE	.0300	

TOTAL PRESSURE RATIOS FOR VARIOUS RAKE POSITIONS

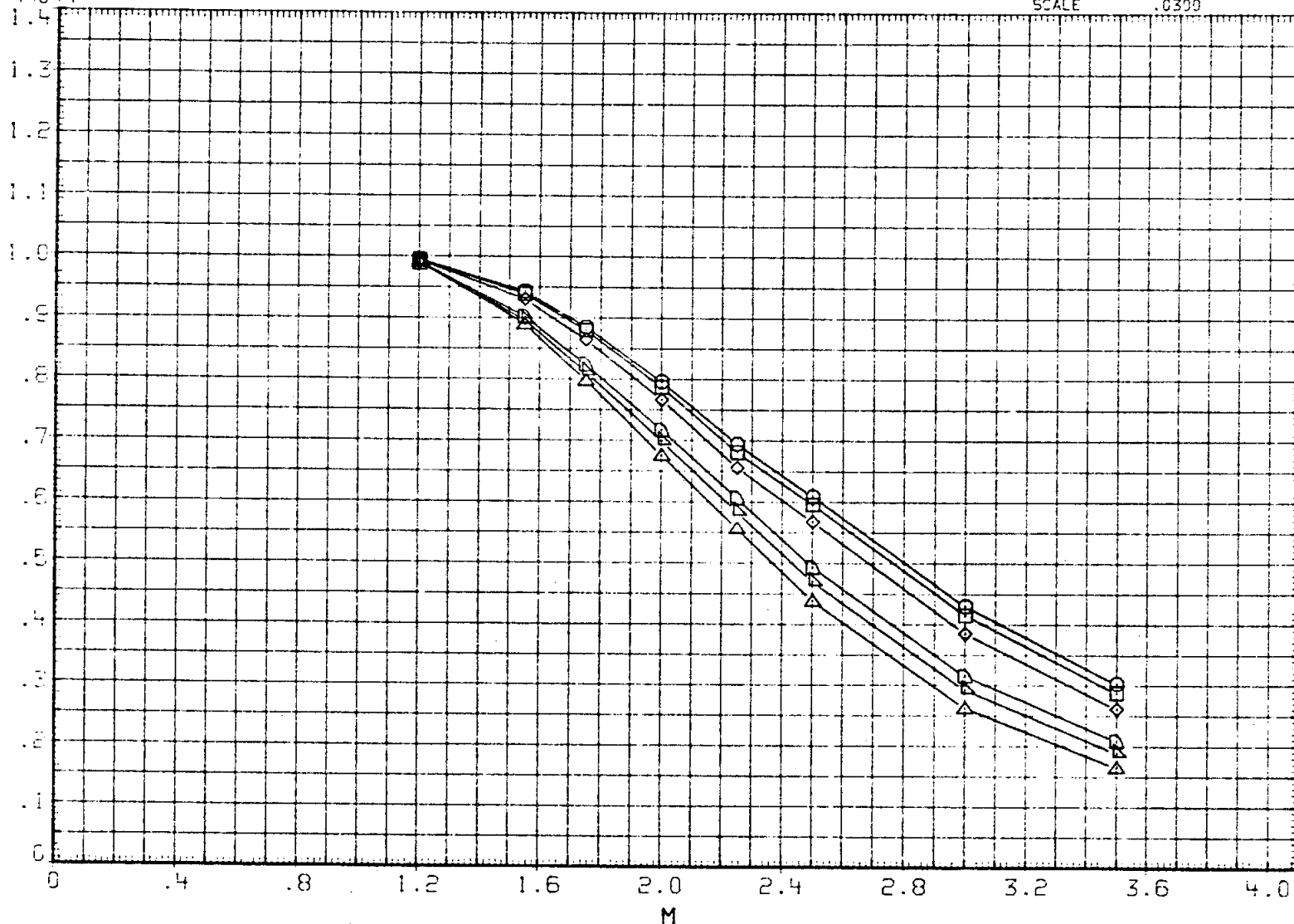


FIG. 29 EFFECT OF POSITION ON TOTAL PRESSURE RATIO PT1/PT BOTH RAKES



(BE7103) ARC 11-97-87-094 OA161 ORBITER + RAKES

SYMBOL

DATA

PARAMETRIC VALUES

PT1/PT	ALPHA	18.000	BETA	-5.000
PT2/PT	ELEVON	.000	AILRON	.000
PT3/PT	BDFLAP	-7.170		
PT4/PT				
PT5/PT				
PT6/PT				

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

TOTAL PRESSURE RATIOS FOR VARIOUS RAKE POSITIONS

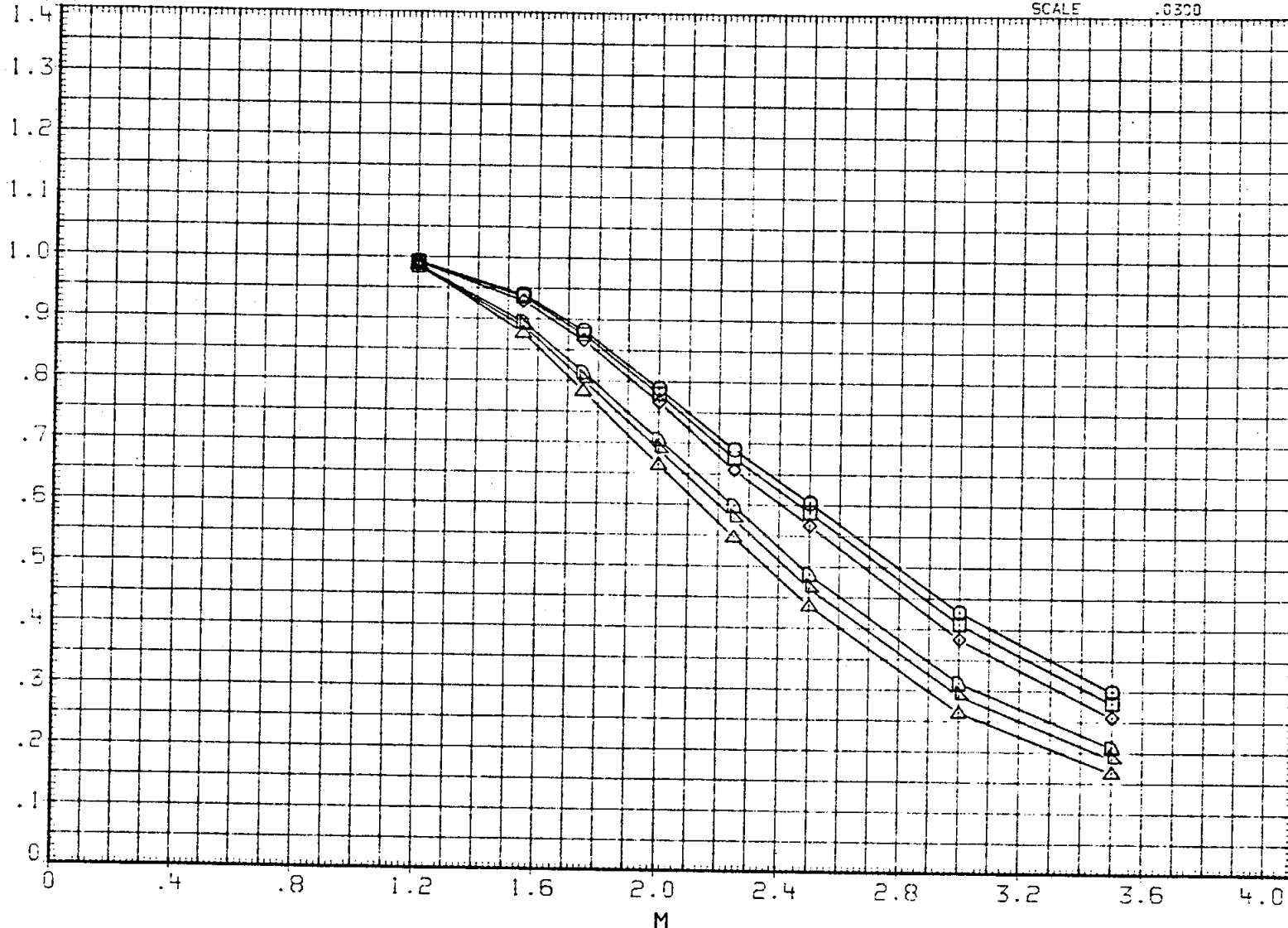


FIG. 29 EFFECT OF POSITION ON TOTAL PRESSURE RATIO PT1/PT BOTH RAKES

SYMBOL

DATA

PARAMETRIC VALUES

REFERENCE INFORMATION

PT1/PT	ALPHA	24.000	BETA	-5.000
PT2/PT	ELEVON	.000	AILRON	.000
PT3/PT	BDFLAP	-7.170		
PT4/PT				
PT5/PT				
PT6/PT				

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	376.0000	IN. ZO
SCALE	.0300	

TOTAL PRESSURE RATIOS FOR VARIOUS RAKE POSITIONS

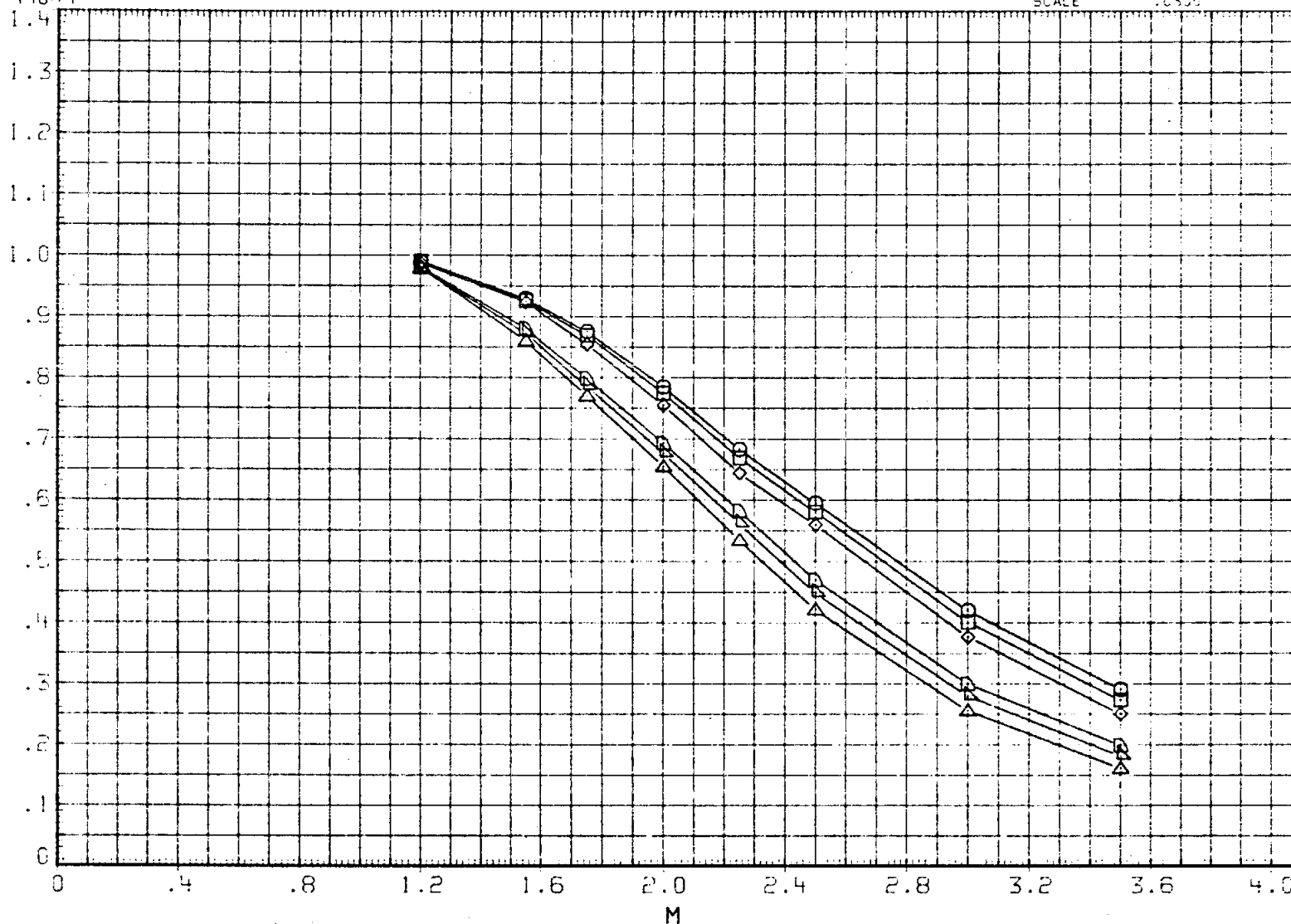


FIG. 29 EFFECT OF POSITION ON TOTAL PRESSURE RATIO PT1/PT BOTH RAKES

(BE7105) ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL	DATA	PARAMETRIC VALUES			
PT1/PT	ALPHA	.000	BETA	.000	
PT2/PT	ELEVON	.000	AILRON	.000	
PT3/PT	BDFLAP	-7.170			
PT4/PT					
PT5/PT					
PT6/PT					

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

TOTAL PRESSURE RATIOS FOR VARIOUS RAKE POSITIONS

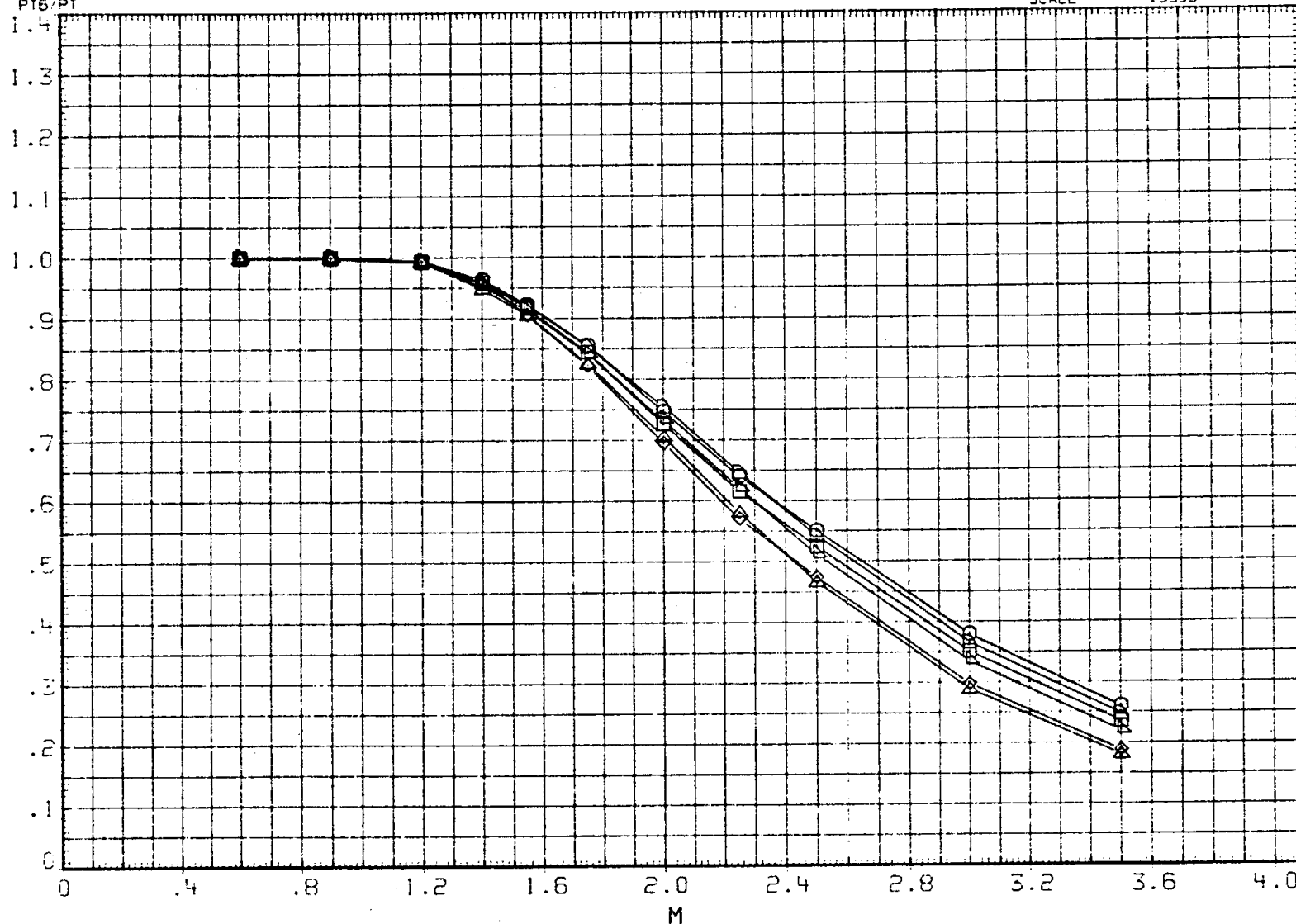


FIG. 29 EFFECT OF POSITION ON TOTAL PRESSURE RATIO PT1/PT BOTH RAKES

SYMBOL

DATA		PARAMETRIC VALUES			
PT1/PT	ALPHA	6.000	BETA	.000	
PT2/PT	ELEVON	.000	AILRON	.000	
PT3/PT	BOFLAP	-7.170			
PT4/PT					
PT5/PT					
PT6/PT					

REFERENCE INFORMATION

SREF	2690.0000	SQ. FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. X0
YMPP	.0000	IN. Y0
ZMPP	375.0000	IN. Z0
SCALE	.0300	

TOTAL PRESSURE RATIOS FOR VARIOUS RAKE POSITIONS

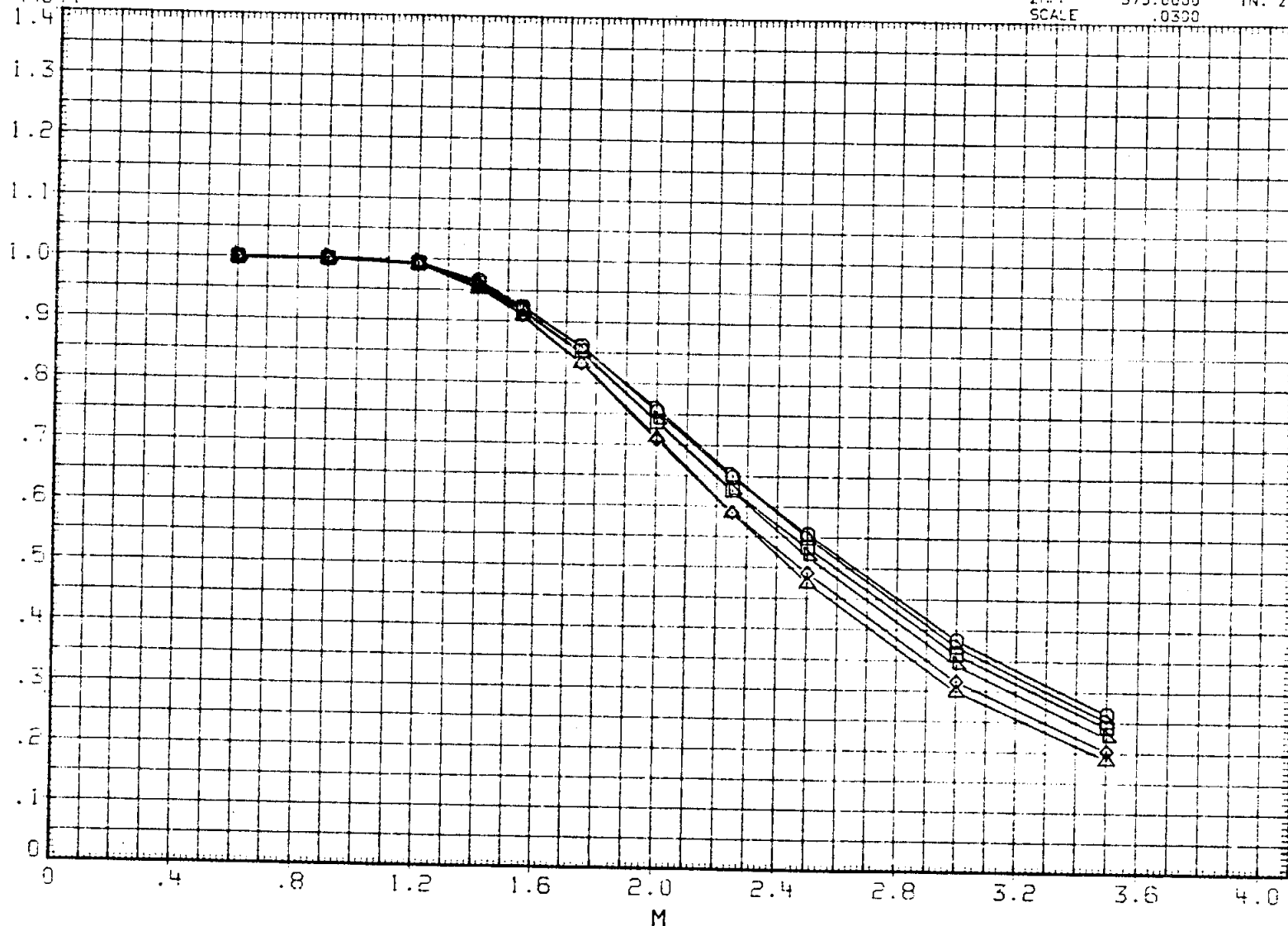


FIG. 29 EFFECT OF POSITION ON TOTAL PRESSURE RATIO PT1/PT BOTH RAKES

(BE7105) ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL	DATA	PARAMETRIC VALUES			
PT1/PT	ALPHA	12.000	BETA	.000	
PT2/PT	ELEVON	.000	ATLRON	.000	
PT3/PT	BOFLAP	-7.170			
PT4/PT					
PT5/PT					
PT6/PT					

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.9300	

TOTAL PRESSURE RATIOS FOR VARIOUS RAKE POSITIONS

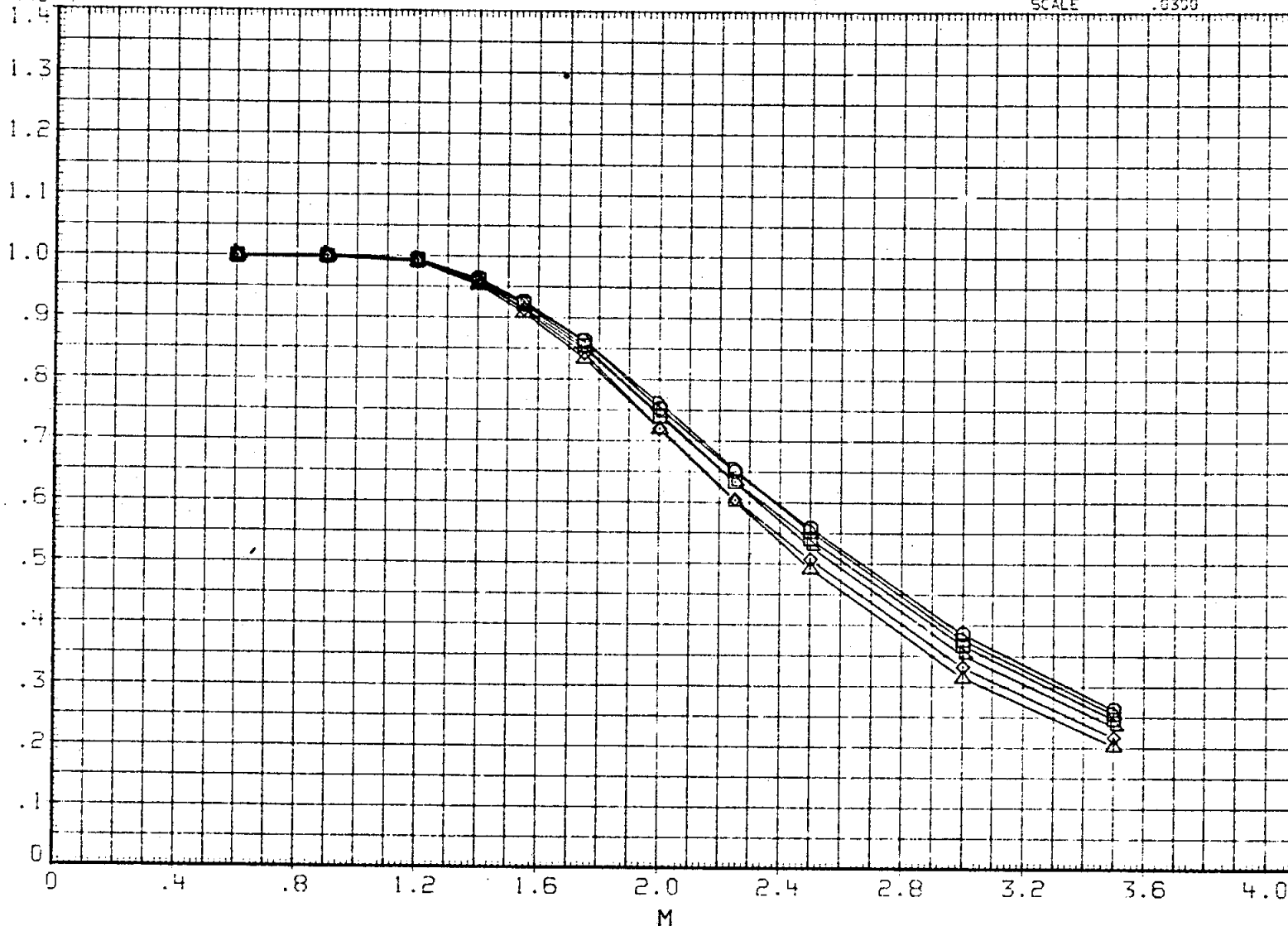


FIG. 29 EFFECT OF POSITION ON TOTAL PRESSURE RATIO PT1/PT BOTH RAKES

SYMBOL

DATA

PARAMETRIC VALUES

REFERENCE INFORMATION

P11/PT ALPHA 16.000 BETA .000  
 P12/PT ELEVON .000 AILRON .000  
 P13/PT BOFLAP -7.170  
 P14/PT  
 P15/PT  
 P16/PT

SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 935.6800 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

TOTAL PRESSURE RATIOS FOR VARIOUS RAKE POSITIONS

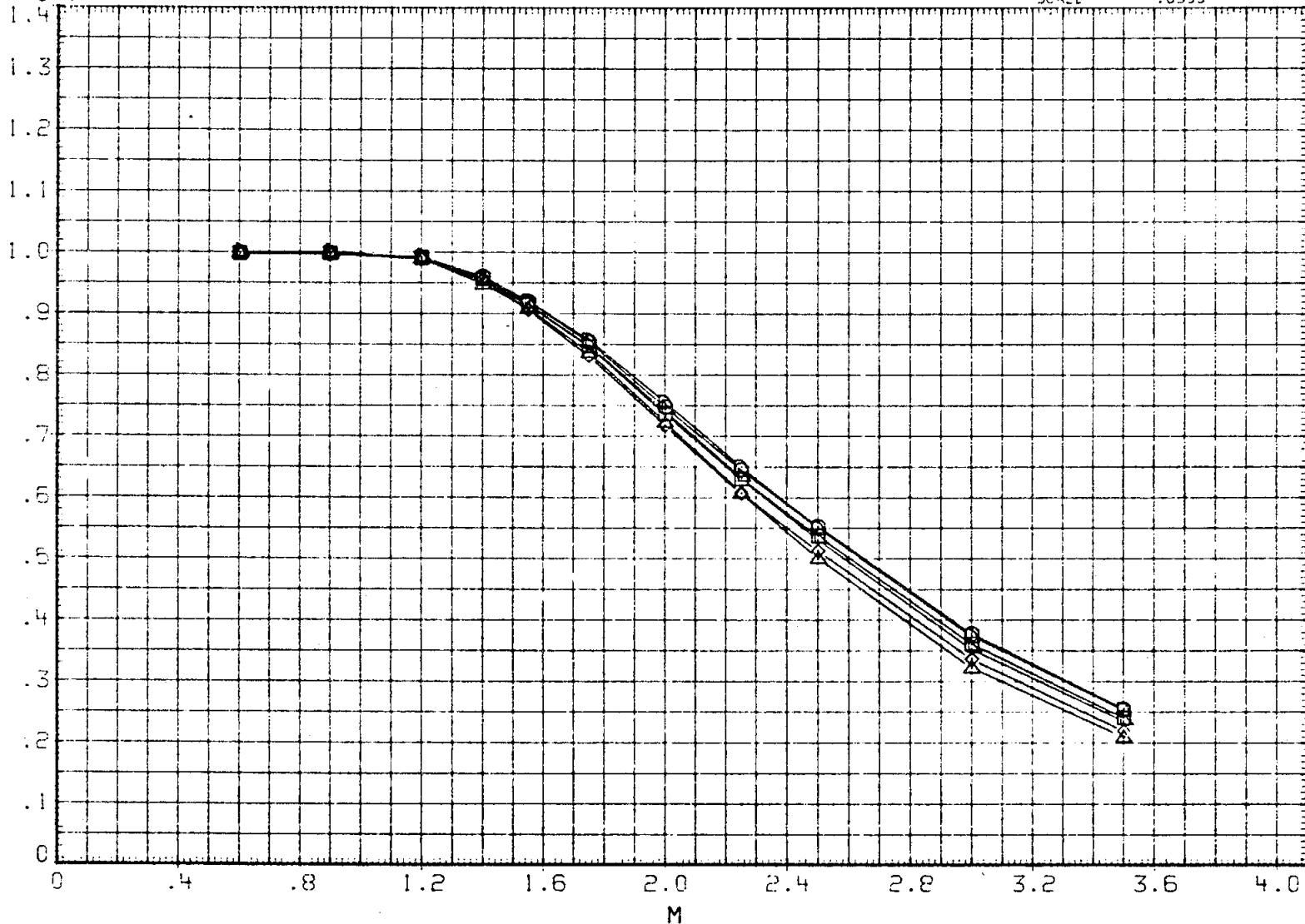


FIG. 29 EFFECT OF POSITION ON TOTAL PRESSURE RATIO PT1/PT BOTH RAKES

(BE7105) ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL

DATA

PARAMETRIC VALUES

REFERENCE INFORMATION

PT1/PT	ALPHA	24.000	BETA	.000
PT2/PT	ELEVON	.000	AILRON	.000
PT3/PT	BOFLAP	-7.170		
PT4/PT				
PT5/PT				
PT6/PT				

SREF	2690.0000	50. FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

TOTAL PRESSURE RATIOS FOR VARIOUS RAKE POSITIONS

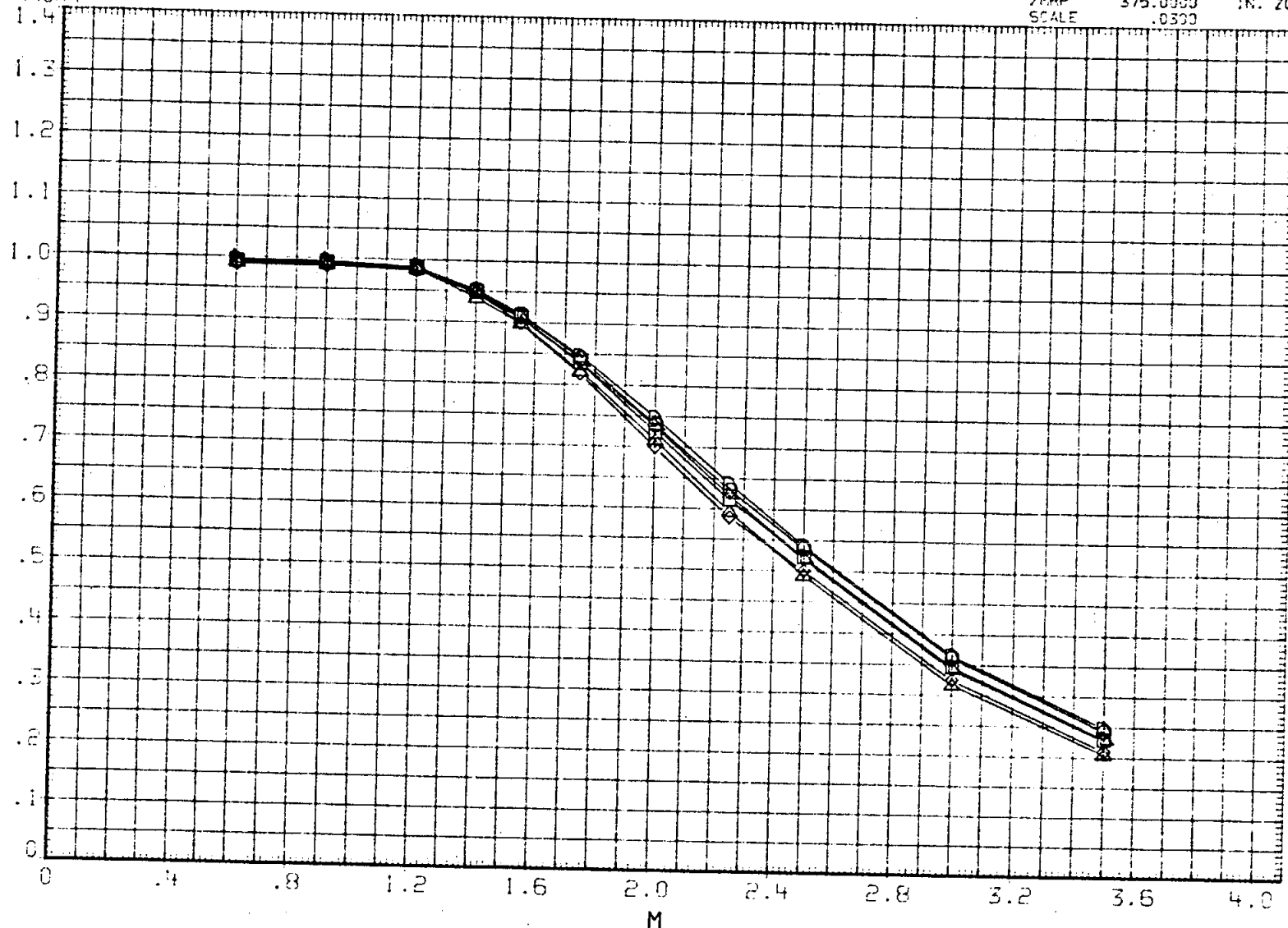


FIG. 29 EFFECT OF POSITION ON TOTAL PRESSURE RATIO PT1/PT BOTH RAKES

SYMBOL

DATA

PARAMETRIC VALUES

REFERENCE INFORMATION

P11/PT  
 P12/PT  
 P13/PT  
 P14/PT  
 P15/PT  
 P16/PT

ALPHA  
 ELEVON  
 BOFLAP

.000  
 .000  
 -7.170

BETA  
 AILRON

5.000  
 .000

SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMPP 1076.6800 IN. XO  
 YMP 0.0000 IN. YO  
 ZMP 375.0000 IN. ZO  
 SCALE .0300

TOTAL PRESSURE RATIOS FOR VARIOUS RAKE POSITIONS

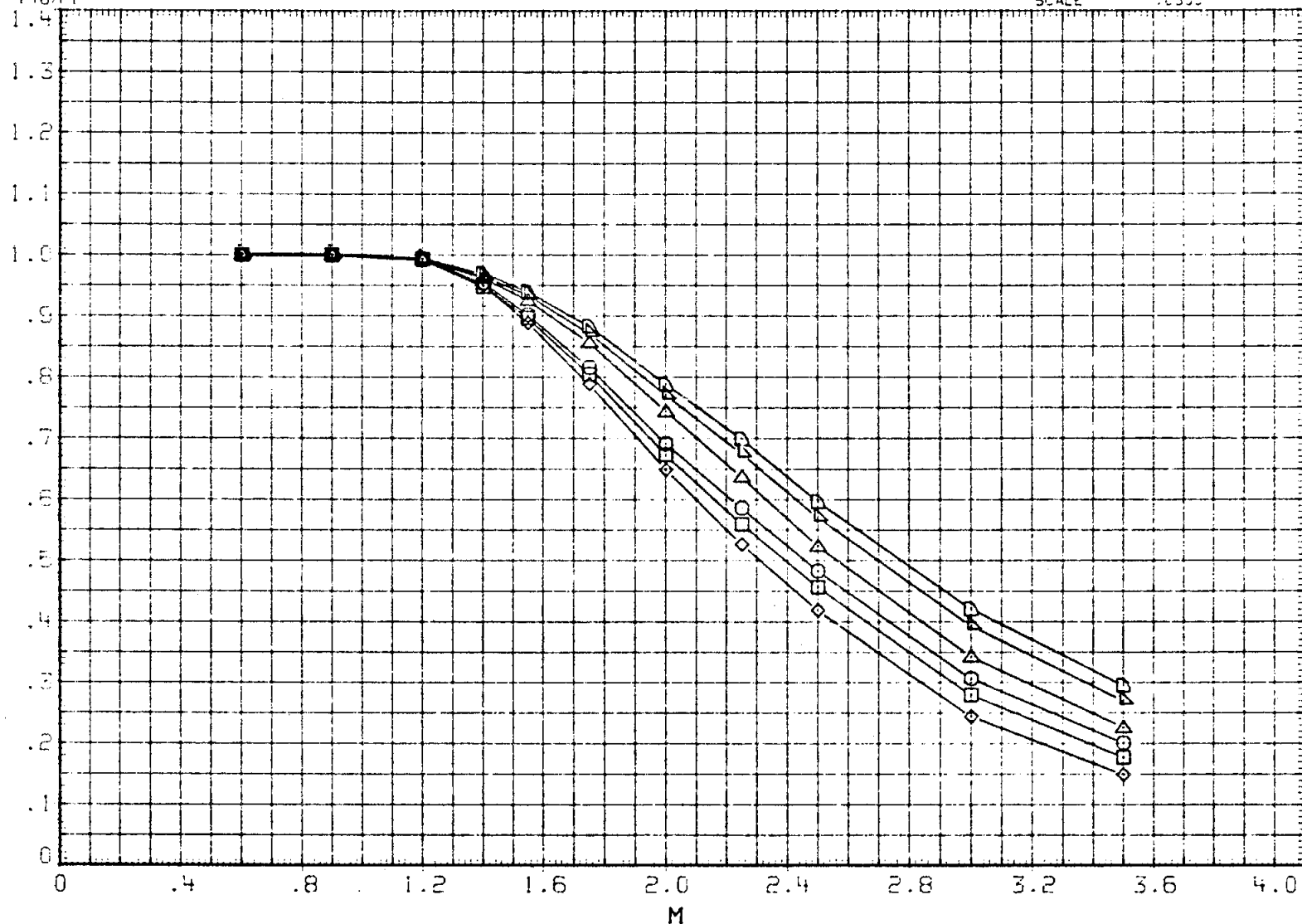


FIG. 29 EFFECT OF POSITION ON TOTAL PRESSURE RATIO PT1/PT BOTH RAKES



(BE7107) ARC 11-97-87-094 OA161 ORBITER + RAKES

SYMBOL	DATA	PARAMETRIC VALUES			
$\nabla$ $\Delta$ $\square$ $\diamond$	PT1/PT	ALPHA	6.000	BETA	5.000
	PT2/PT	ELEVON	.000	AILRON	.000
	PT3/PT	BDFLAP	-7.170		
	PT4/PT				
	PT5/PT				
	PT6/PT				

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	935.6000	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

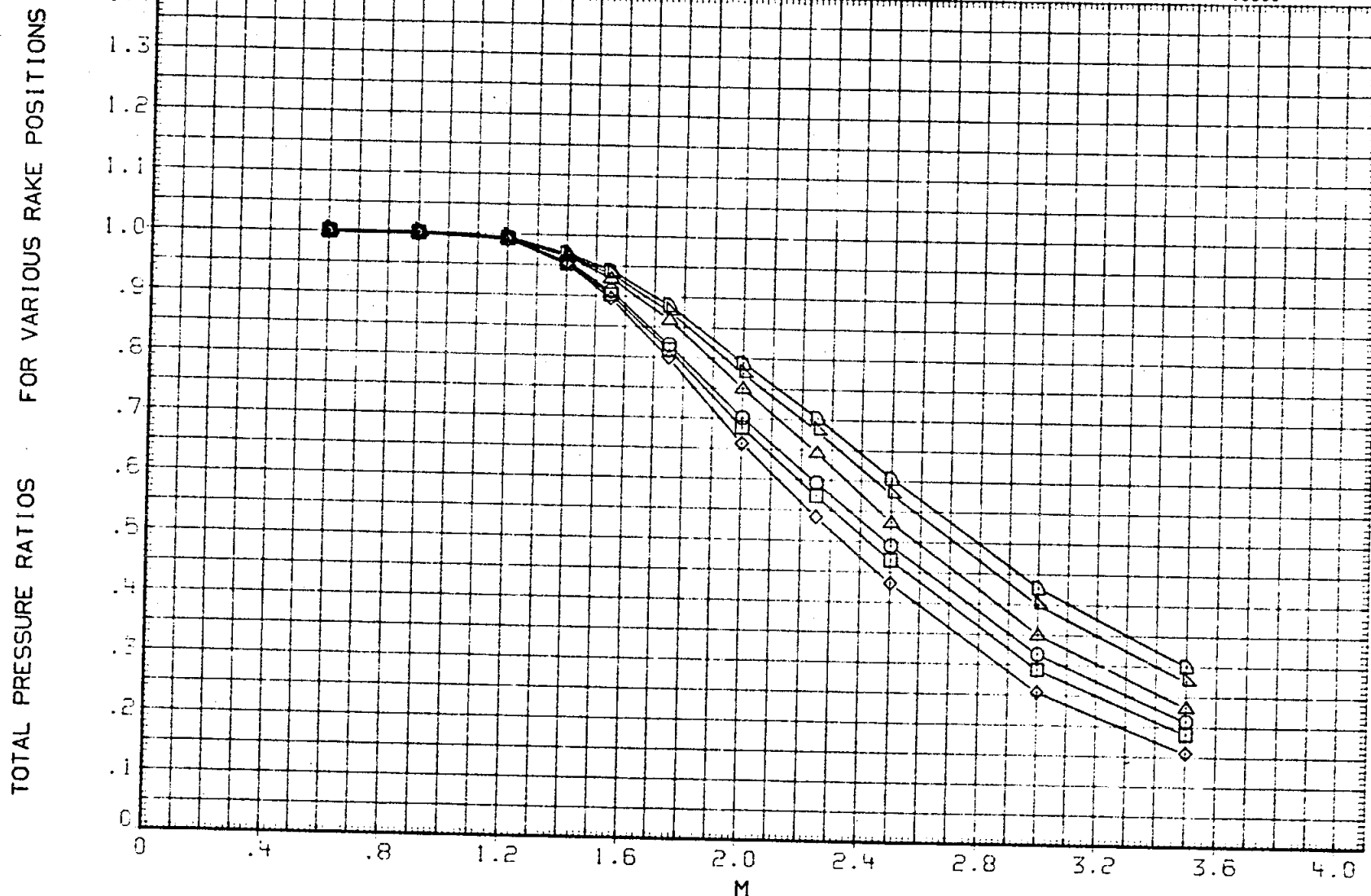


FIG. 29 EFFECT OF POSITION ON TOTAL PRESSURE RATIO PT1/PT BOTH RAKES

SYMBOL

DATA

PARAMETRIC VALUES

REFERENCE INFORMATION

DATA	PARAMETRIC VALUES
PT1/PT	ALPHA 12.000 BETA 5.000
PT2/PT	ELEVON .000 AILRON .000
PT3/PT	BDFLAP -7.170
PT4/PT	
PT5/PT	
PT6/PT	

SREF	2690.0000	SQ. FT.
LREF	474.8000	IN.
BREF	936.6900	IN.
XMPP	1076.6900	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

TOTAL PRESSURE RATIOS FOR VARIOUS RAKE POSITIONS

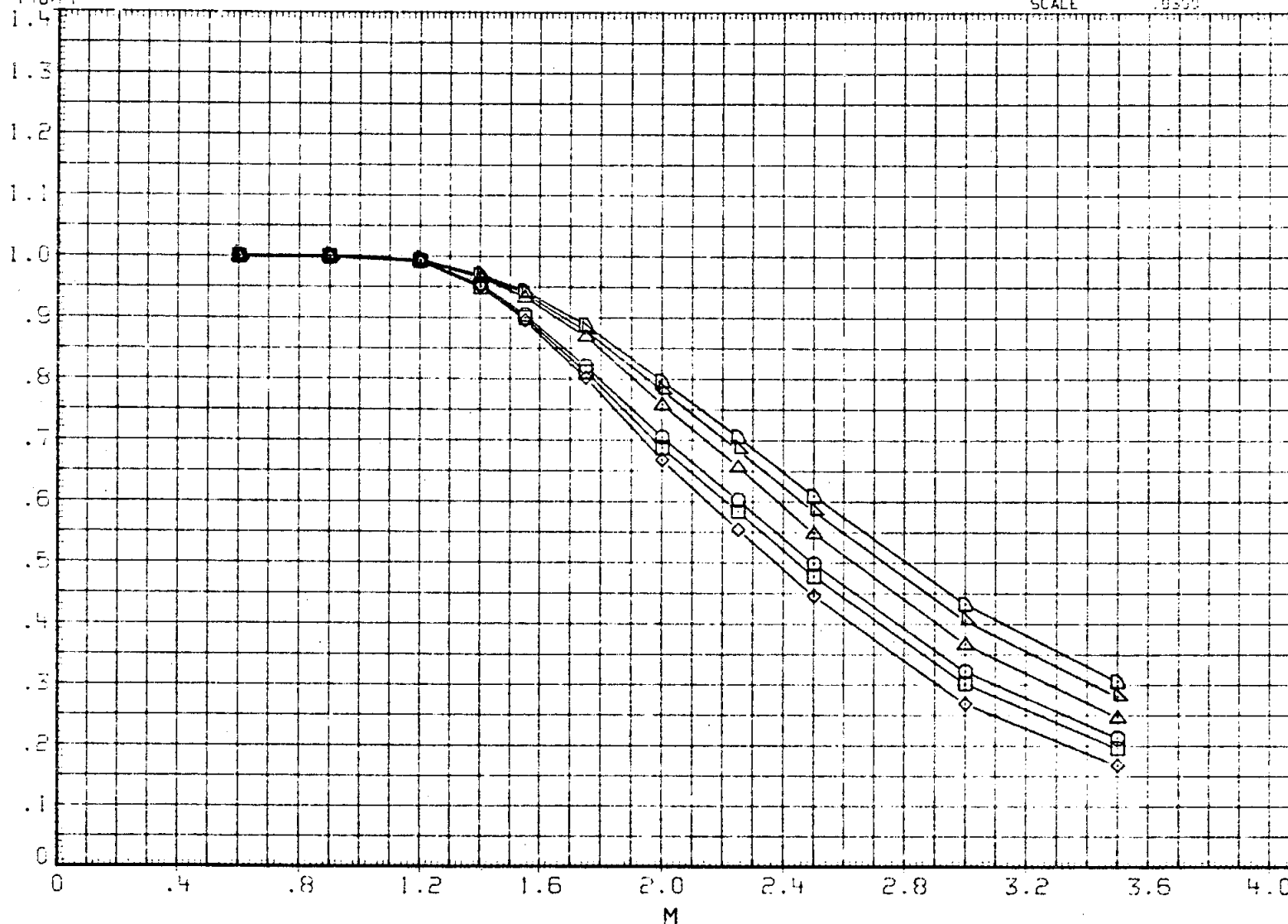


FIG. 29 EFFECT OF POSITION ON TOTAL PRESSURE RATIO PT1/PT BOTH RAKES

(BE7107) ARC 11-97-87-094 0A161 ORBITER + RAKES

SYMBOL

DATA

PARAMETRIC VALUES

PT1/PT	ALPHA	18.000	BETA	5.000
PT2/PT	ELEVON	.000	AILRON	.000
PT3/PT	BDFLAP	-7.170		
PT4/PT				
PT5/PT				
PT6/PT				

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

TOTAL PRESSURE RATIOS  
FOR VARIOUS RAKE POSITIONS

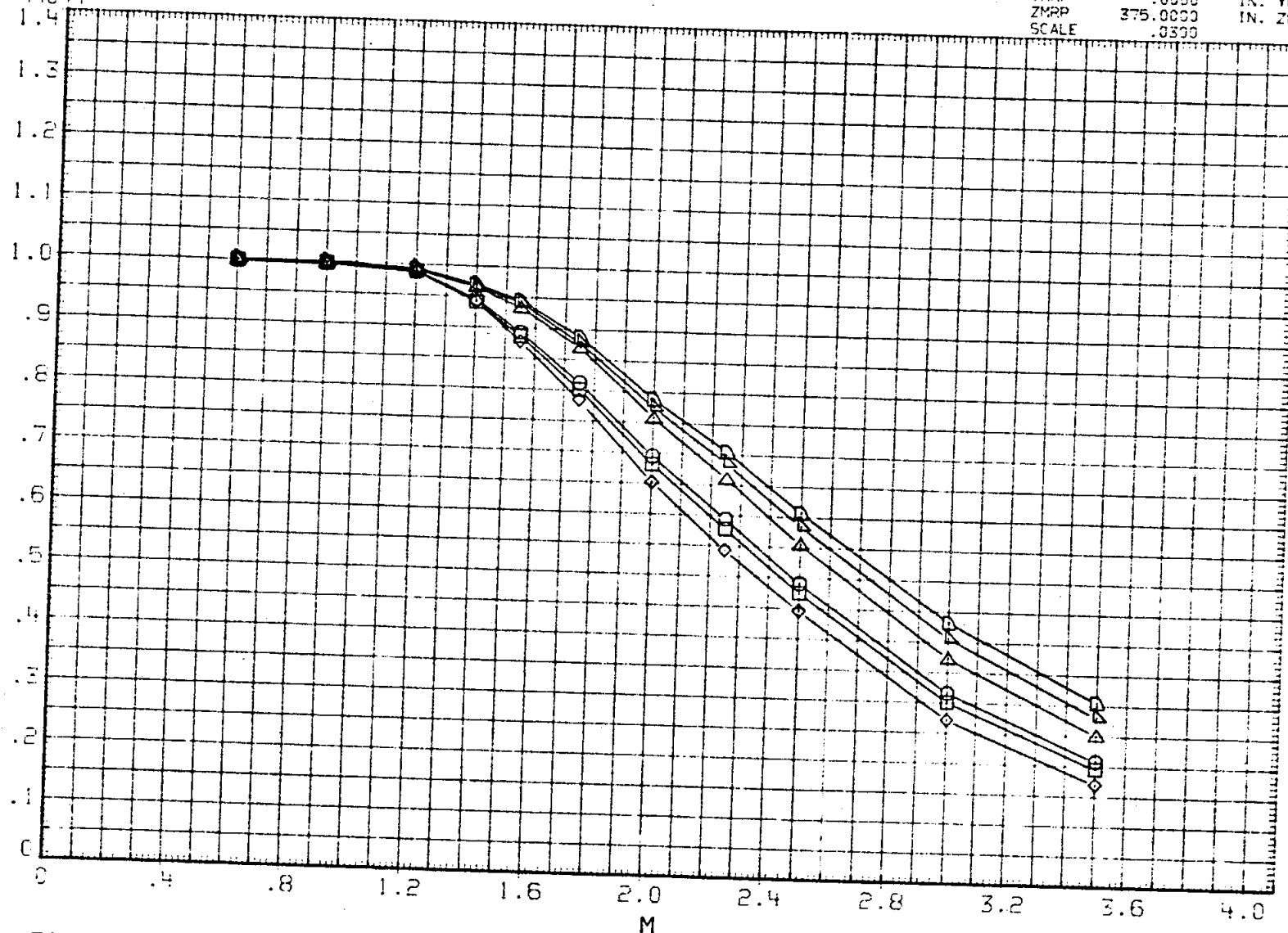


FIG. 29 EFFECT OF POSITION ON TOTAL PRESSURE RATIO PT1/PT BOTH RAKES

SYMBOL

DATA

PARAMETRIC VALUES

REFERENCE INFORMATION

PT1/PT1 ALPHA 24.000 BETA 5.000  
 PT2/PT2 ELEVON .000 AILRON .000  
 PT3-PT BDFLAP -7.178  
 PT4-PT  
 PT5-PT  
 PT6-PT

SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE .0000

TOTAL PRESSURE RATIOS FOR VARIOUS RAKE POSITIONS

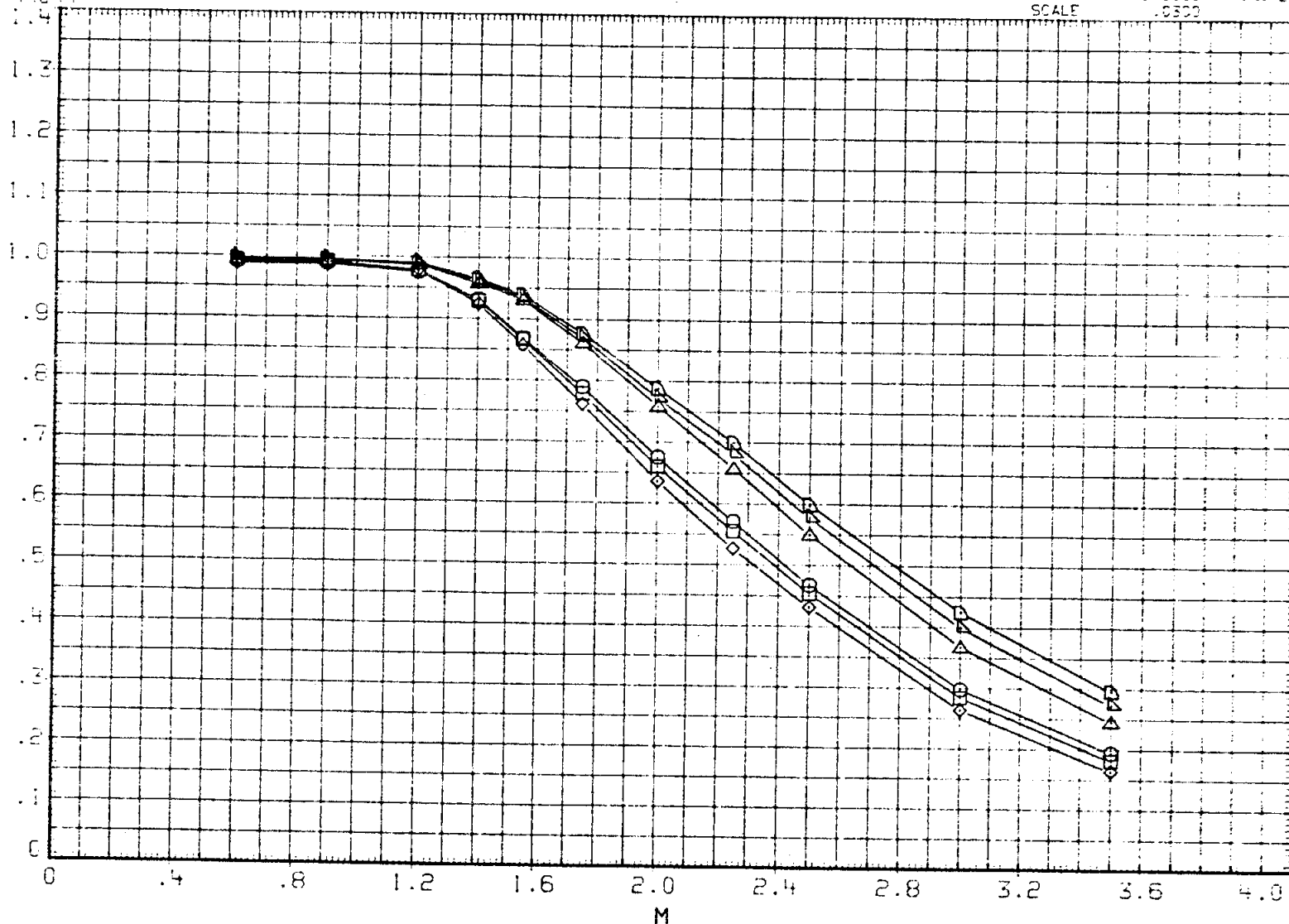


FIG. 29 EFFECT OF POSITION ON TOTAL PRESSURE RATIO PT1/PT BOTH RAKES

DATA SET SYMBOL

CONFIGURATION

BETA	ELEVON	AILRON	BDFLAP
-5.000	.000	.000	-7.170
-5.000	.000	.000	-7.170
-5.000	.000	2.500	-7.170
-5.000	.000	5.000	-7.170

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.6300	

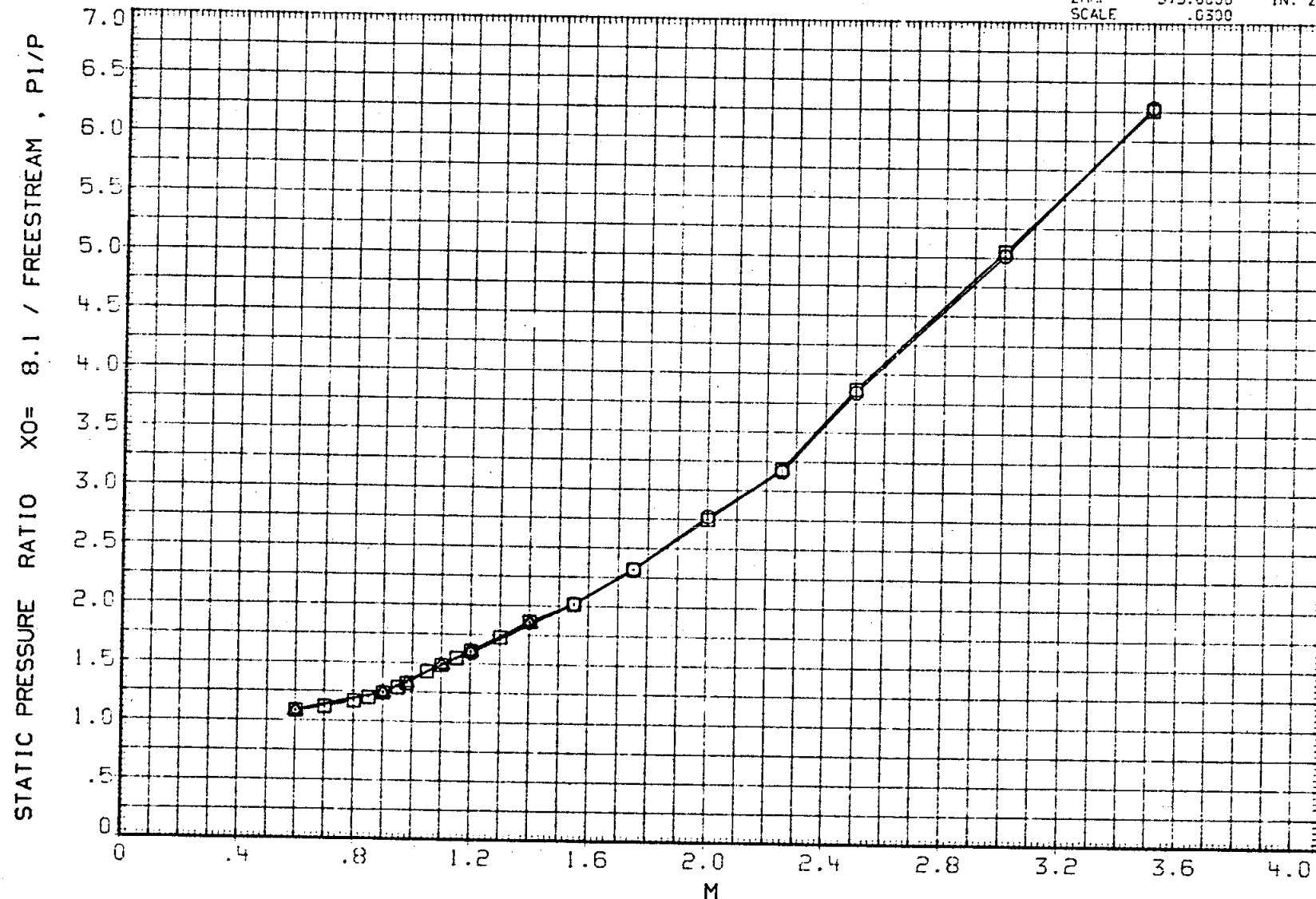


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(A) ALPHA = .00

## DATA SET SYMBOL

## CONFIGURATION

## BETA

## ELEVON

## AILRON

## BOFLAP

## REFERENCE INFORMATION

AE7803 ○ ARC 11-97-87-094 0A161 ORBITER + RAKES  
 AE7813 □ ARC 11-97-87-094 0A161 ORBITER  
 AE7818 ◇ ARC 11-97-87-094 0A161 ORBITER  
 AE7823 △ ARC 11-97-87-094 0A161 ORBITER

-5.000 .000 .000 -7.170  
 -5.000 .000 .000 -7.170  
 -5.000 .000 2.500 -7.170  
 -5.000 .000 5.000 -7.170

SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMPP 1075.6600 IN. XO  
 YMP 0.0000 IN. YO  
 ZMP 375.0000 IN. ZO  
 SCALE .0300

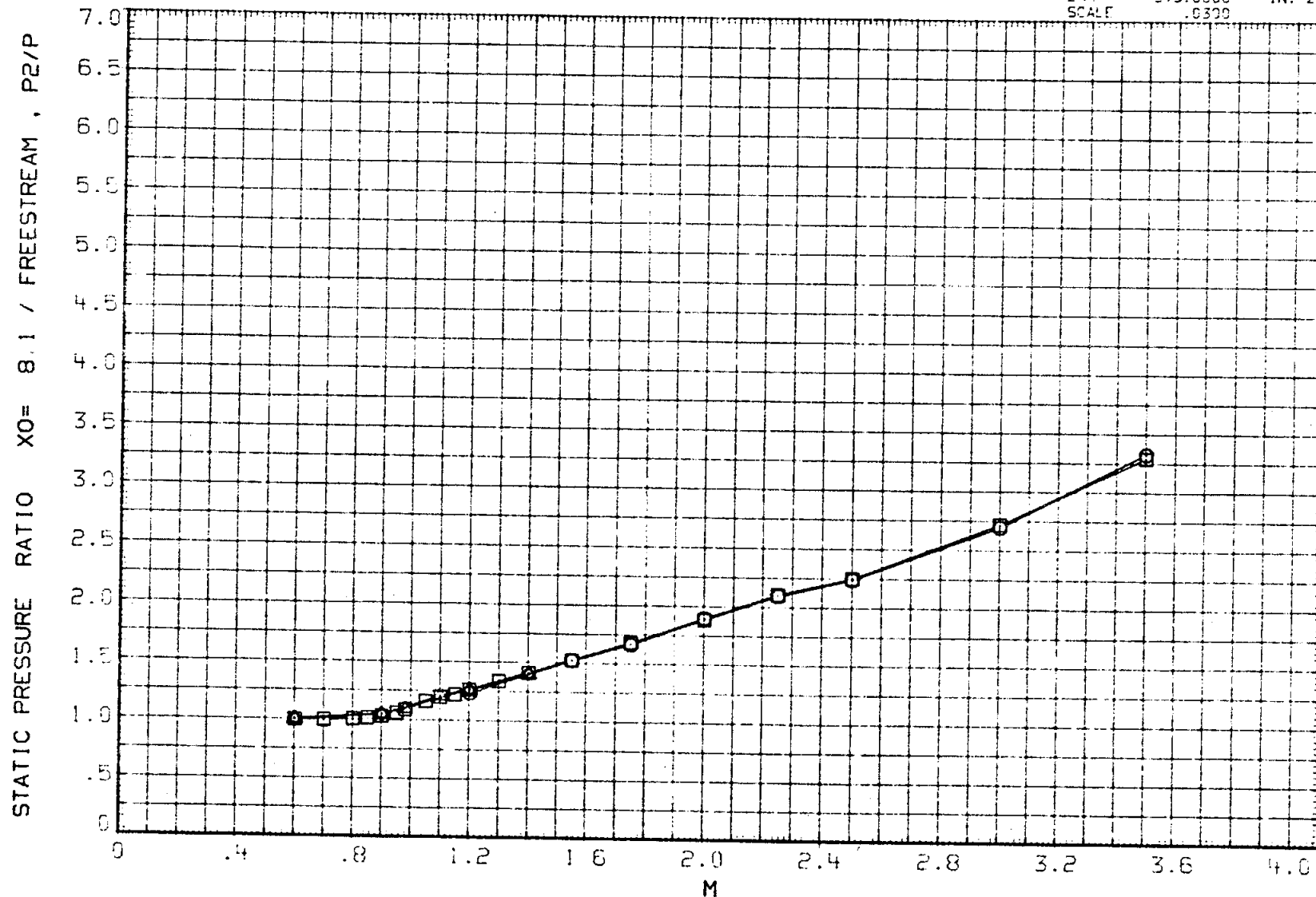


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(A) ALPHA = .00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
AE7803	○	ARC 11-87-87-094 0A161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
AE7813	□	ARC 11-97-87-094 0A161 ORBITER	-5.000	.000	.000	-7.170	LREF	474.8000	IN.
AE7818	◇	ARC 11-97-87-094 0A161 ORBITER	-5.000	.000	2.500	-7.170	BREF	936.6800	IN.
AE7823	△	ARC 11-97-87-094 0A161 ORBITER	-5.000	.000	5.000	-7.170	XMPP	1076.6800	IN. XO
							YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0300	

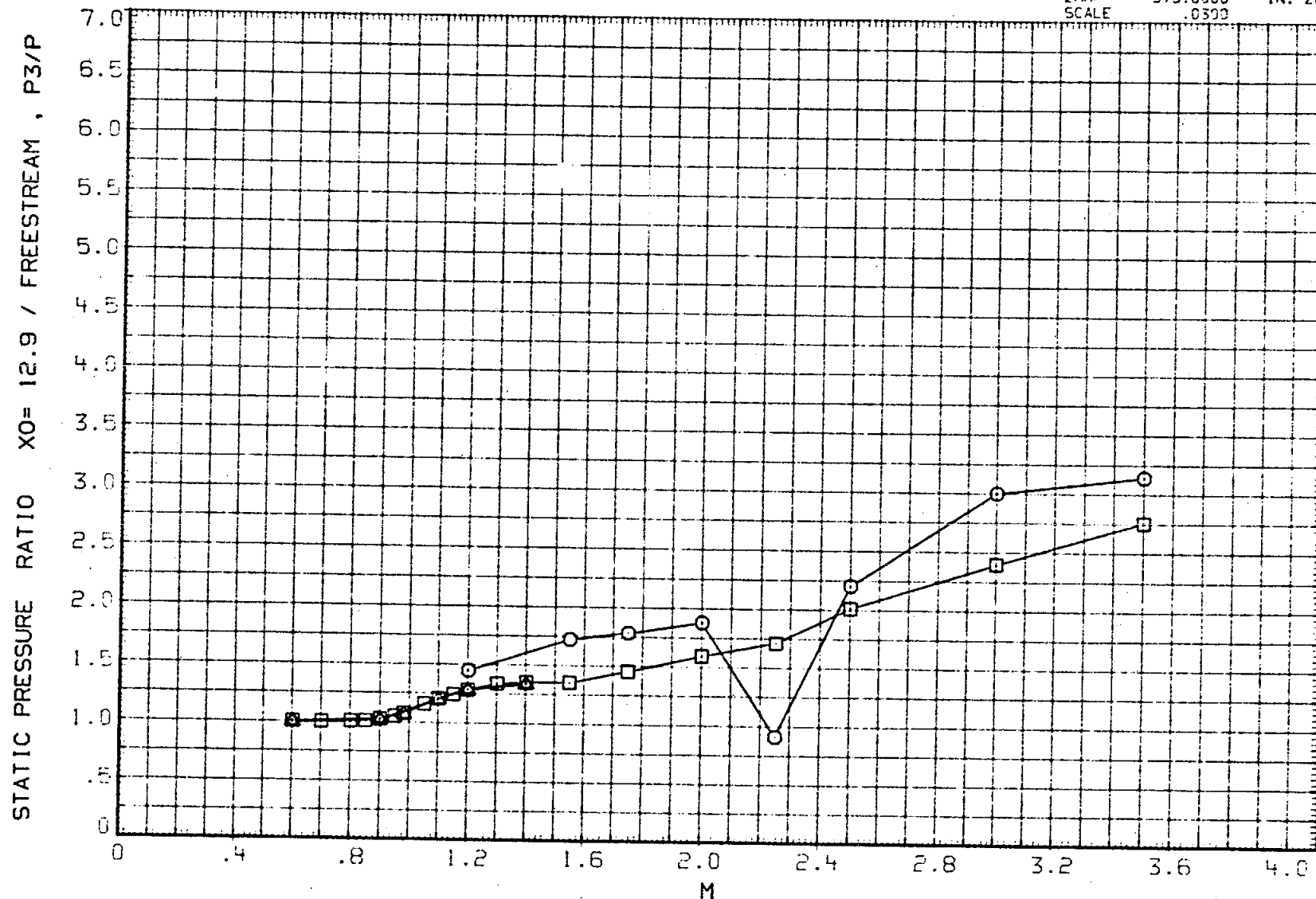


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(A) ALPHA = .00

## DATA SET SYMBOL

## CONFIGURATION

## BETA

## ELEVON

## AILRON

## BDCLAP

## REFERENCE INFORMATION

AE7B03 ○ ARC 11-97-87-094 0A161 ORBITER + RAKES  
 AE7B13 □ ARC 11-97-87-094 0A161 ORBITER  
 AE7B18 ◇ ARC 11-97-87-094 0A161 ORBITER  
 AE7B23 △ ARC 11-97-87-094 0A161 ORBITER

-5.000 .000 .000 -7.170  
 -5.000 .000 .000 -7.170  
 -5.000 .000 2.500 -7.170  
 -5.000 .000 5.000 -7.170

SREF 2690.0000 SC.FT.  
 LREF 474.2500 IN.  
 DREF 926.6400 IN.  
 XMPP 1076.6800 IN. X0  
 YMPP .0000 IN. Y0  
 ZMPP 375.0000 IN. Z0  
 SCALE .0070

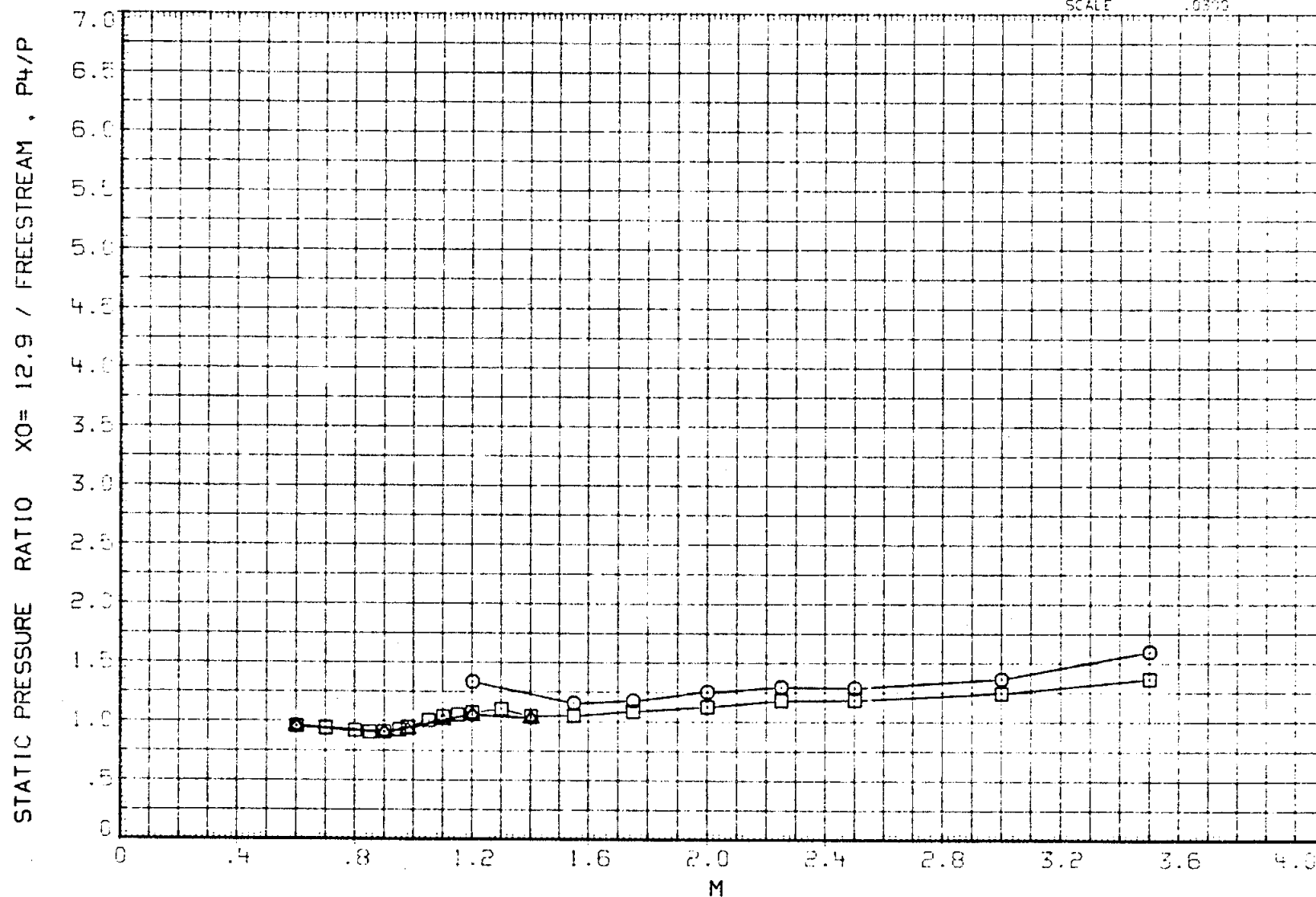


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(A) ALPHA = .00



DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
AE7B03	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
AE7B13	□	ARC 11-97-87-094 OA161 ORBITER	-5.000	.000	.000	-7.170	LREF	474.8000	IN.
AE7B18	◇	DATA NOT AVAILABLE	-5.000	.000	2.500	-7.170	BREF	936.6900	IN.
AE7B23	△	DATA NOT AVAILABLE	-5.000	.000	5.000	-7.170	XMRP	1076.6800	IN. X0
							YMRP	.0000	IN. Y0
							ZMRP	375.0000	IN. Z0
							SCALE	.0300	

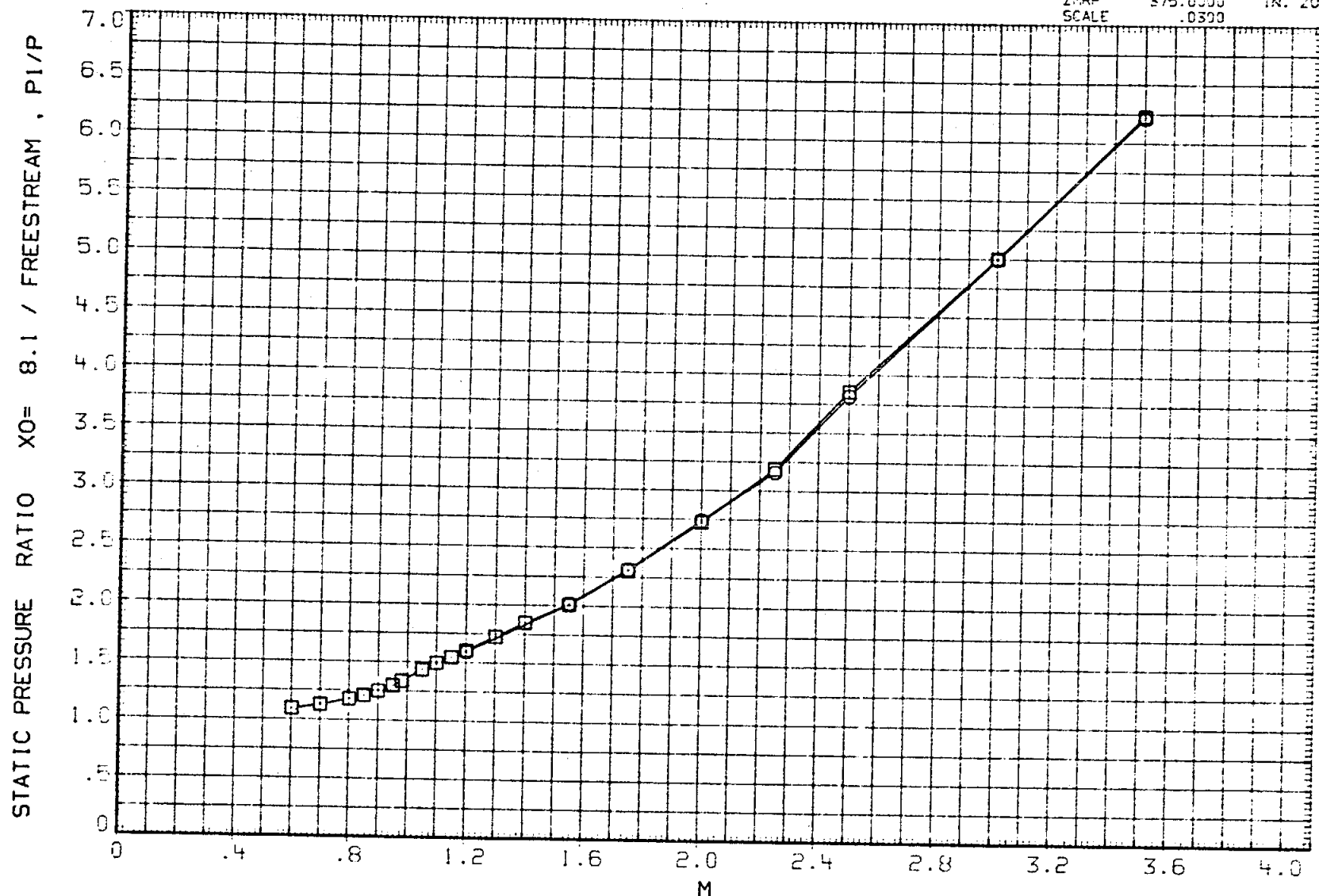


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(B) ALPHA = 6.00

DATA SET	SYMBOL	CONFIGURATION
AE7803	○	ARC 11-97-87-094 OA161 ORBITER + RAKES
AE7813	□	ARC 11-97-87-094 OA161 ORBITER
AE7818	◇	DATA NOT AVAILABLE
AE7823	△	DATA NOT AVAILABLE

BETA	ELEVON	AILRON	BDFLAP
-5.000	.000	.000	-7.170
-5.000	.000	.000	-7.170
-5.000	.000	2.500	-7.170
-5.000	.000	5.000	-7.170

REFERENCE INFORMATION		
SREF	2690.0000	SQ. FT.
LREF	474.8000	IN.
BREF	936.6000	IN.
XMPP	1076.6000	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

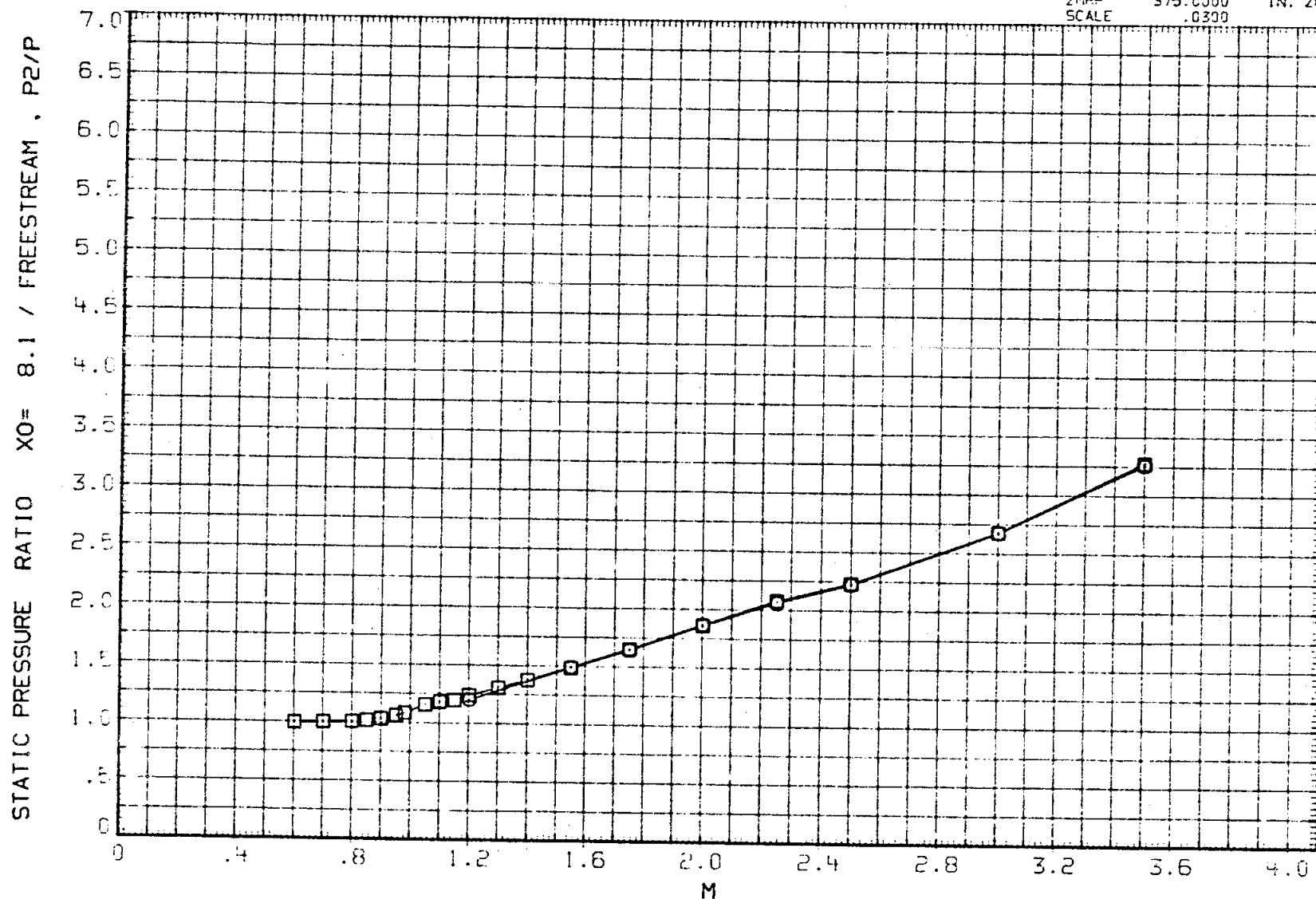


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(B) ALPHA = 6.00

# DATA SET SYMBOL

AE7B03	○	ARC 11-97-87-094 0A161 ORBITER + RAKES
AE7B13	□	ARC 11-97-87-094 0A161 ORBITER
AE7B18	◇	DATA NOT AVAILABLE
AE7B23	△	DATA NOT AVAILABLE

## CONFIGURATION

BETA	ELEVON	AILRON	BUFLAP
-5.000	.000	.000	-7.170
-5.000	.000	.000	-7.170
-5.000	.000	2.500	-7.170
-5.000	.000	5.000	-7.170

## REFERENCE INFORMATION

SREF	2699.0000	SQ. FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

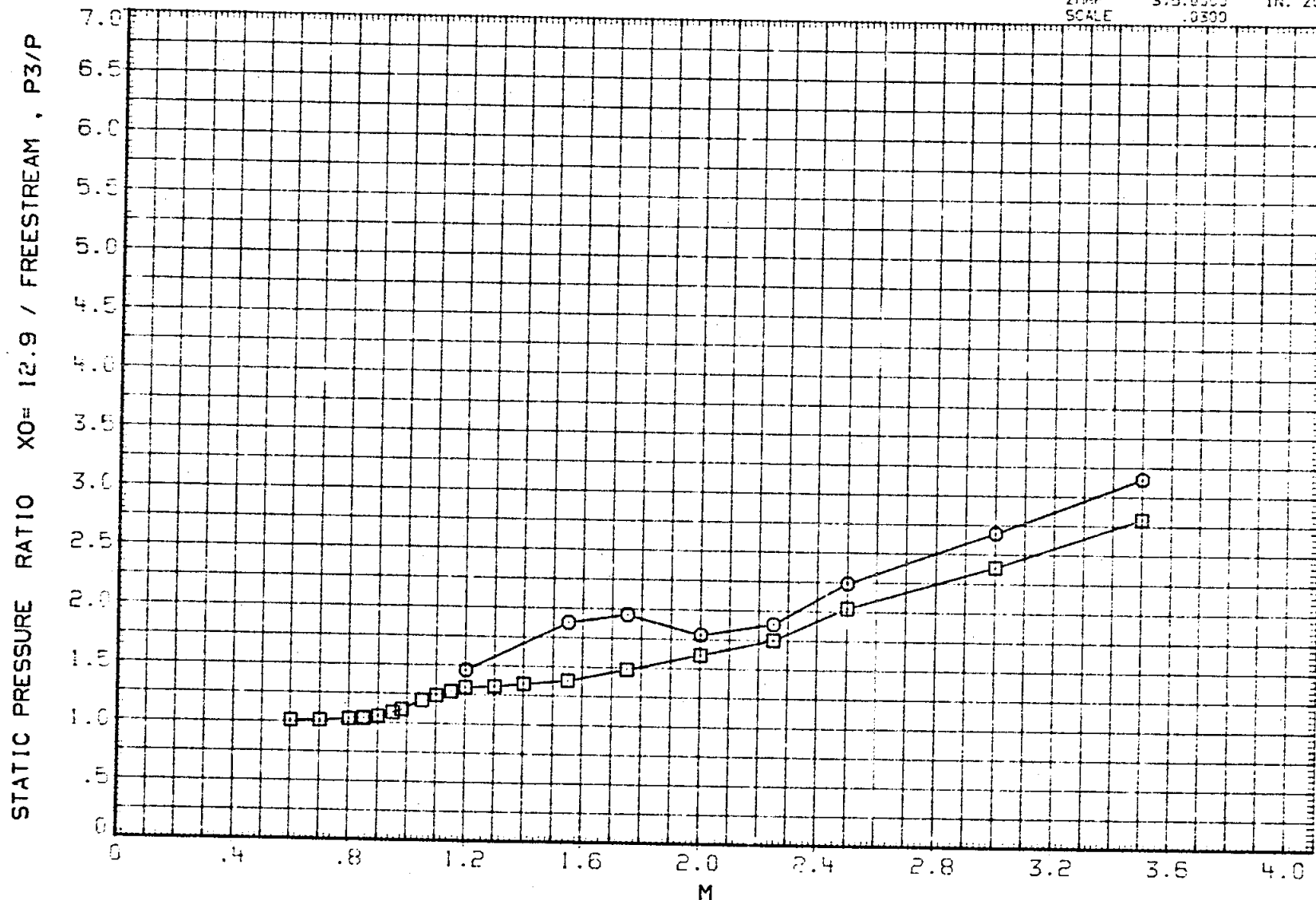


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(B) ALPHA = 6.00

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BDFLAP

REFERENCE INFORMATION

AET803    ○    ARC 11-97-87-094 0A161 ORBITER + RAKES  
 AET813    □    ARC 11-97-87-094 0A161 ORBITER  
 AET818    ◇    DATA NOT AVAILABLE  
 AET823    △    DATA NOT AVAILABLE

-5.000    .000    .000    -7.170  
 -5.000    .000    .000    -7.170  
 -5.000    .000    2.500    -7.170  
 -5.000    .000    5.000    -7.170

SREF    2690.0000    SQ.FT.  
 LREF    474.8000    IN.  
 BREF    936.6800    IN.  
 XMPP    1076.6800    IN. X0  
 YMRP    .0000    IN. Y0  
 ZMRP    375.0000    IN. Z0  
 SCALE    .0390

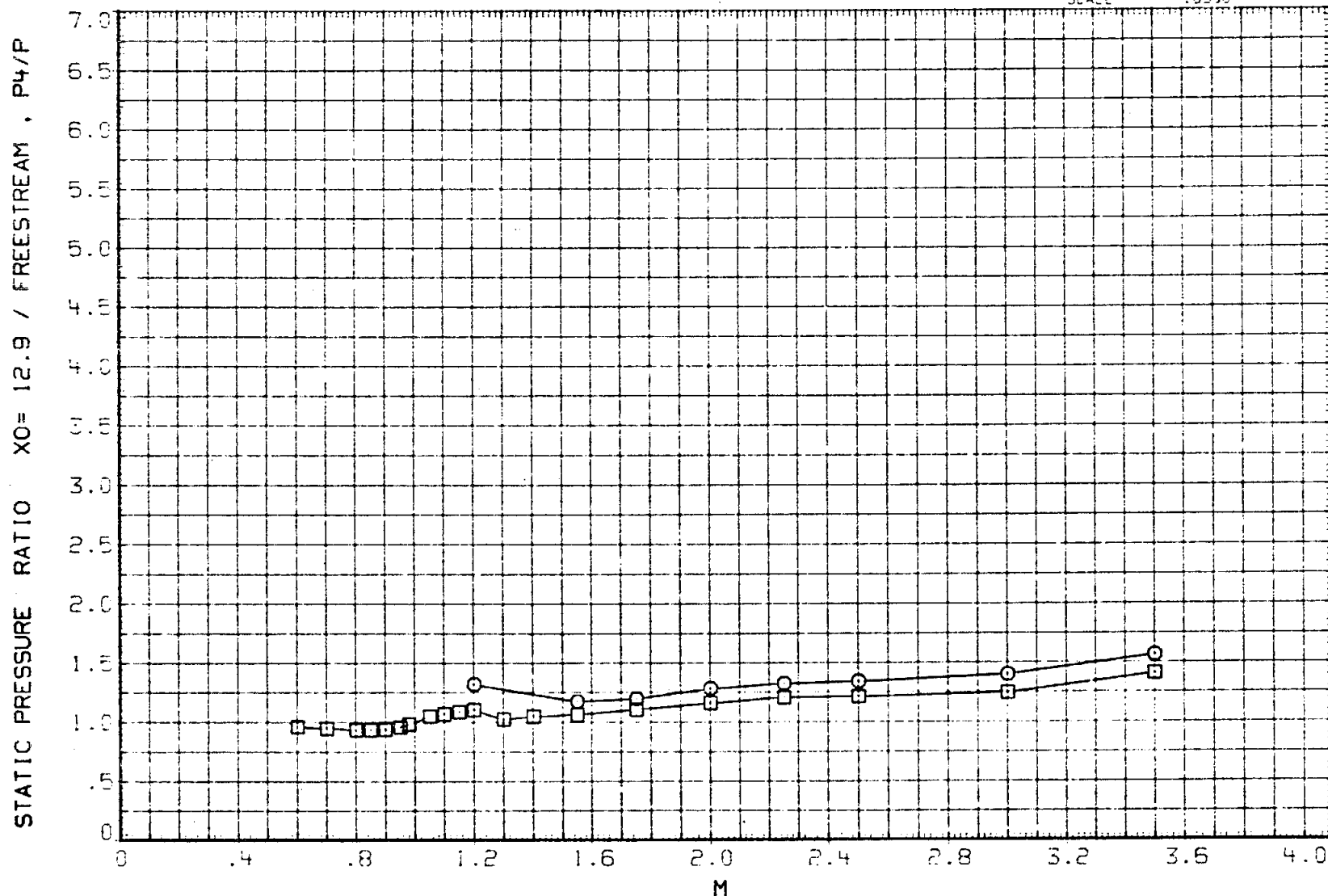


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(B) ALPHA = 6.00

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DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
AE7803	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2630.0000	50.FT.
AE7813	ARC 11-97-87-094 OA161 ORBITER	-5.000	.000	.000	-7.170	LREF	474.8000	IN.
AE7818	ARC 11-97-87-094 OA161 ORBITER	-5.000	.000	2.500	-7.170	BREF	935.6800	IN.
AE7823	ARC 11-97-87-094 OA161 ORBITER	-5.000	.000	5.000	-7.170	XMPP	1076.6900	IN. XO
						YMPP	.0000	IN. YO
						ZMPP	375.0000	IN. ZO
						SCALE	.0300	

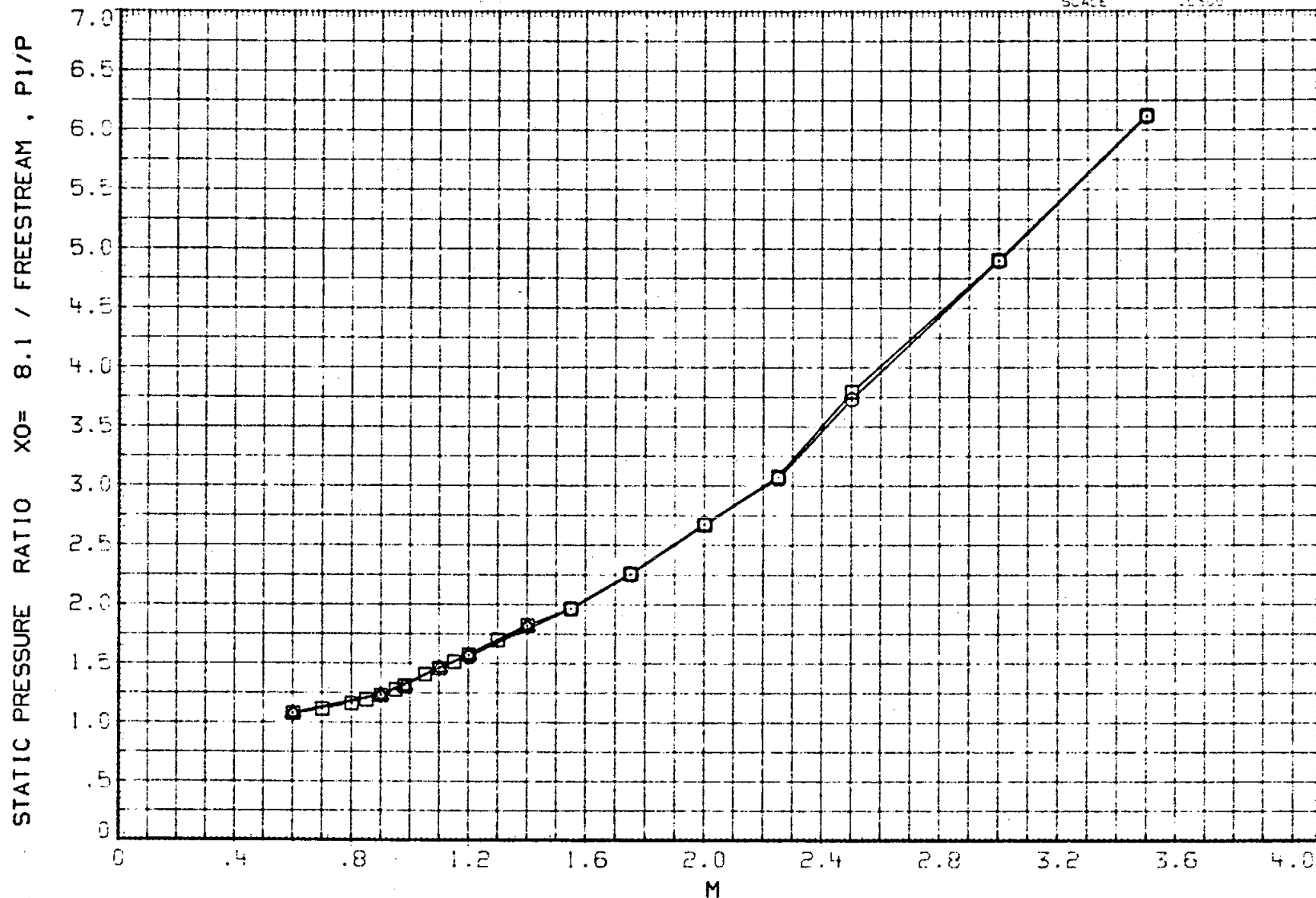


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILERON	BOPLAP	REFERENCE INFORMATION	
AE7803	○	ARC 11-97-87-09+ OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000 SQ. FT.
AE7813	□	ARC 11-97-87-09+ OA161 ORBITER	-5.000	.000	.000	-7.170	LREF	474.8000 IN.
AE7818	◇	ARC 11-97-87-09+ OA161 ORBITER	-5.000	.000	2.500	-7.170	BREF	936.6800 IN.
AE7823	△	ARC 11-97-87-09+ OA161 ORBITER	-5.000	.000	5.000	-7.170	XMPR	1076.6800 IN. XO
							YMPR	.0000 IN. YO
							ZMPR	375.0000 IN. ZO
							SCALE	.0000

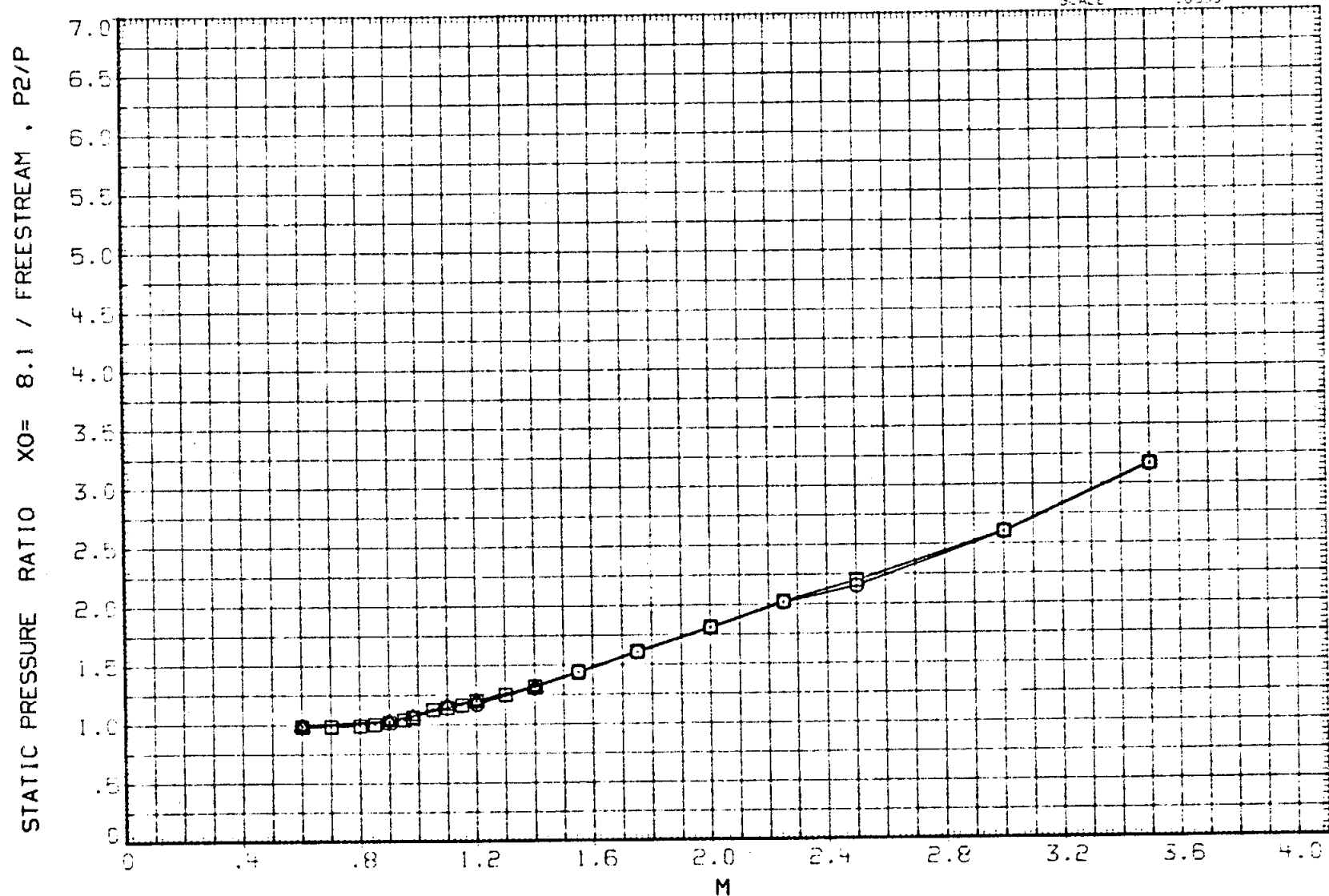


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(C) ALPHA = 12.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION	
AE7B03	○	ARC 11-97-87-09+ OA161 ORBITER • RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000 SQ.FT.
AE7B13	□	ARC 11-97-87-09+ OA161 ORBITER	-5.000	.000	.000	-7.170	LREF	474.8000 IN.
AE7B18	◇	ARC 11-97-87-09+ OA161 ORBITER	-5.000	.000	2.500	-7.170	BREF	935.6000 IN.
AE7B23	△	ARC 11-97-87-09+ OA161 ORBITER	-5.000	.000	5.000	-7.170	XMPP	1076.6000 IN. XO
							YMPP	.0000 IN. YO
							ZMPP	375.6000 IN. ZO
							SCALE	.0300

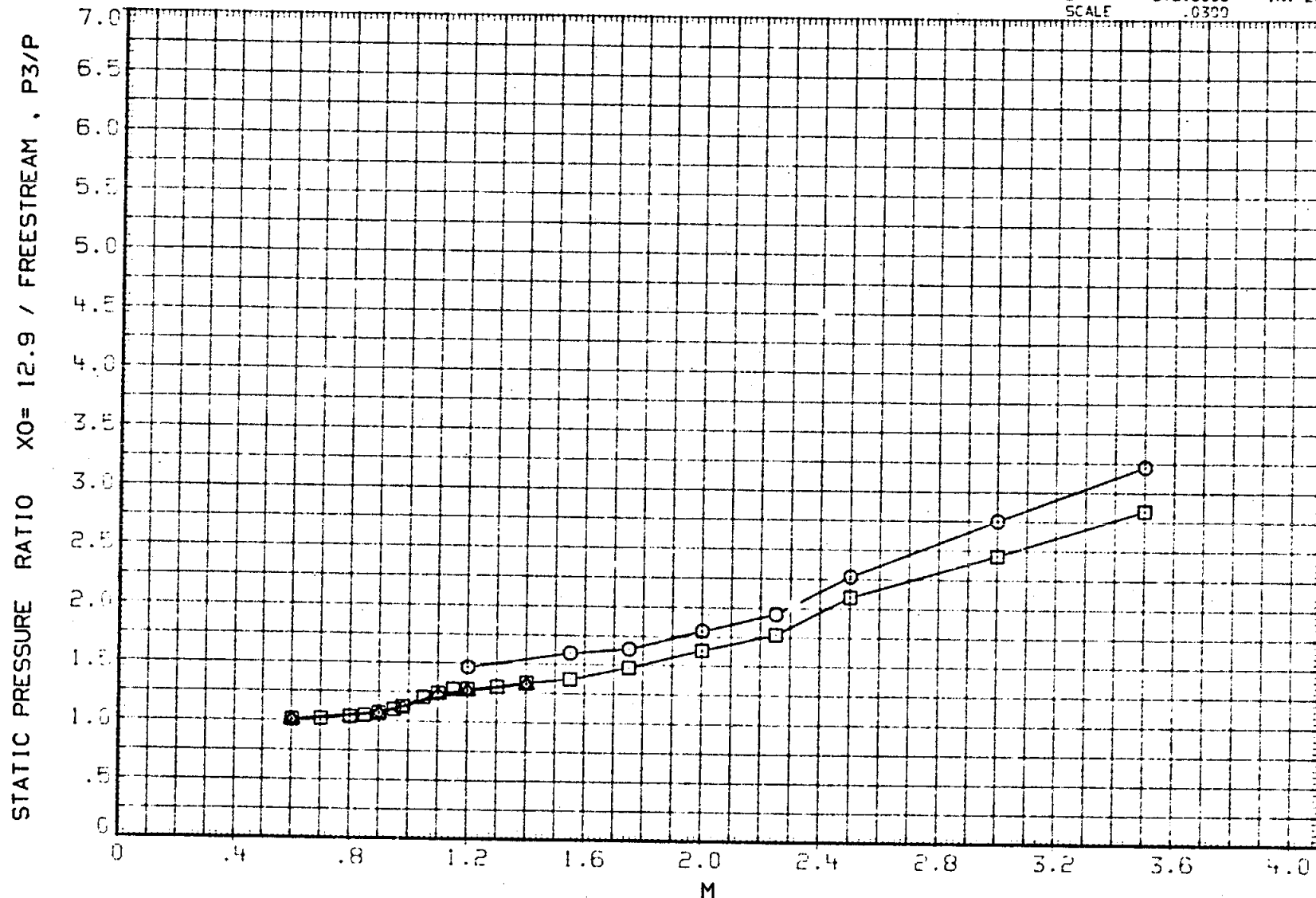


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(C) ALPHA = 12.00

DATA SET SYMBOL

CONFIGURATION

PETA

ELEVON

AILRON

BOFLAP

REFERENCE INFORMATION

AETB03 ○ ARC 11-97-87-094 0A161 ORBITER + RAKES  
 AETB13 □ ARC 11-97-87-094 0A161 ORBITER  
 AETB18 ◇ ARC 11-97-87-094 0A161 ORBITER  
 AETB23 △ ARC 11-97-87-094 0A161 ORBITER

-5.000 .000 .000 -7.170  
 -5.000 .000 .000 -7.170  
 -5.000 .000 2.500 -7.170  
 -5.000 .000 5.000 -7.170

SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 935.6900 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

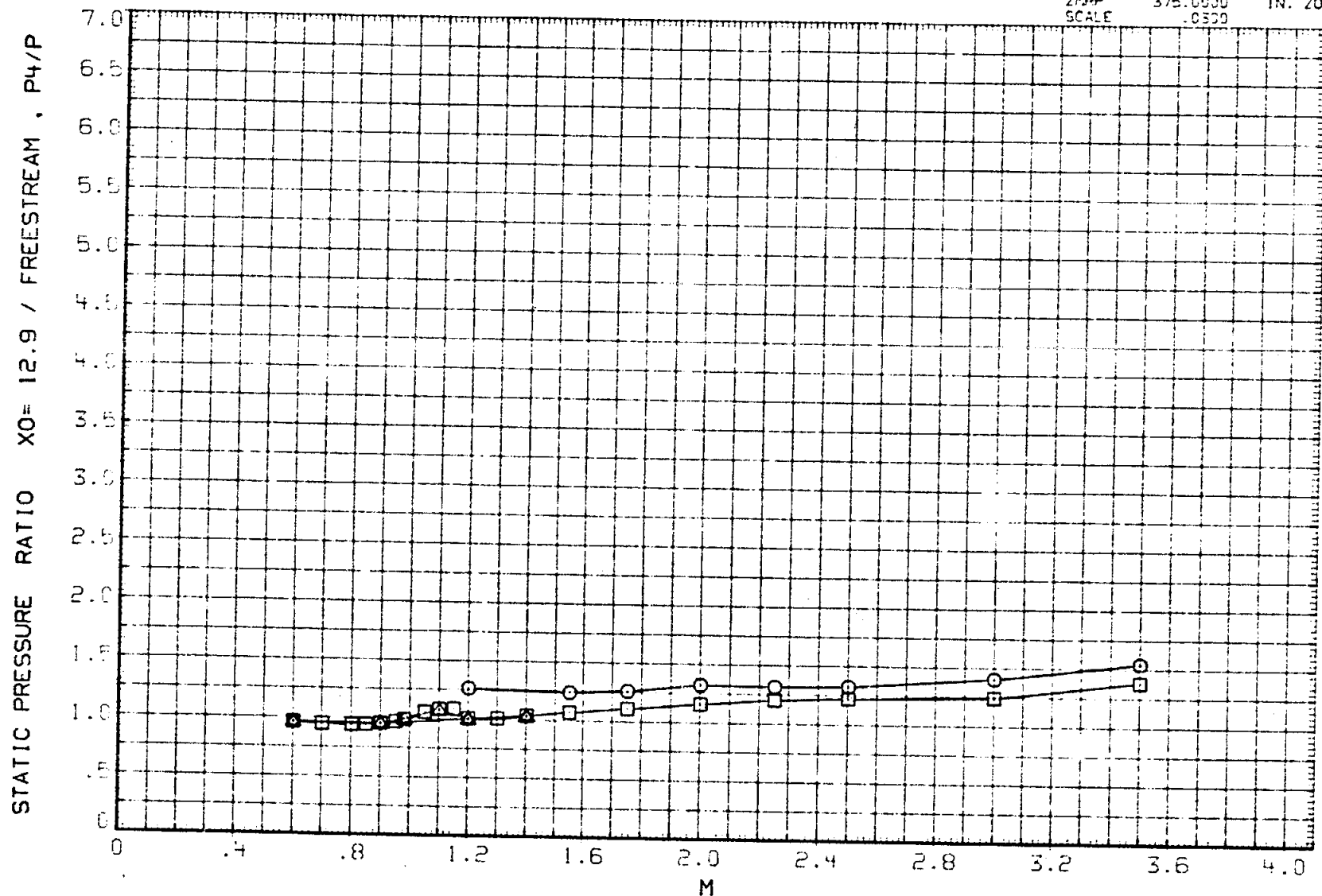


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(C) ALPHA = 12.00



DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
AE7803	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
AE7813	□	ARC 11-97-87-094 OA161 ORBITER	-5.000	.000	.000	-7.170	LREF	474.8000	IN.
AE7818	◇	DATA NOT AVAILABLE	-5.000	.000	2.500	-7.170	BREF	936.6000	IN.
AE7823	△	DATA NOT AVAILABLE	-5.000	.000	5.000	-7.170	XMPP	1076.6800	IN. XO
							YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0300	

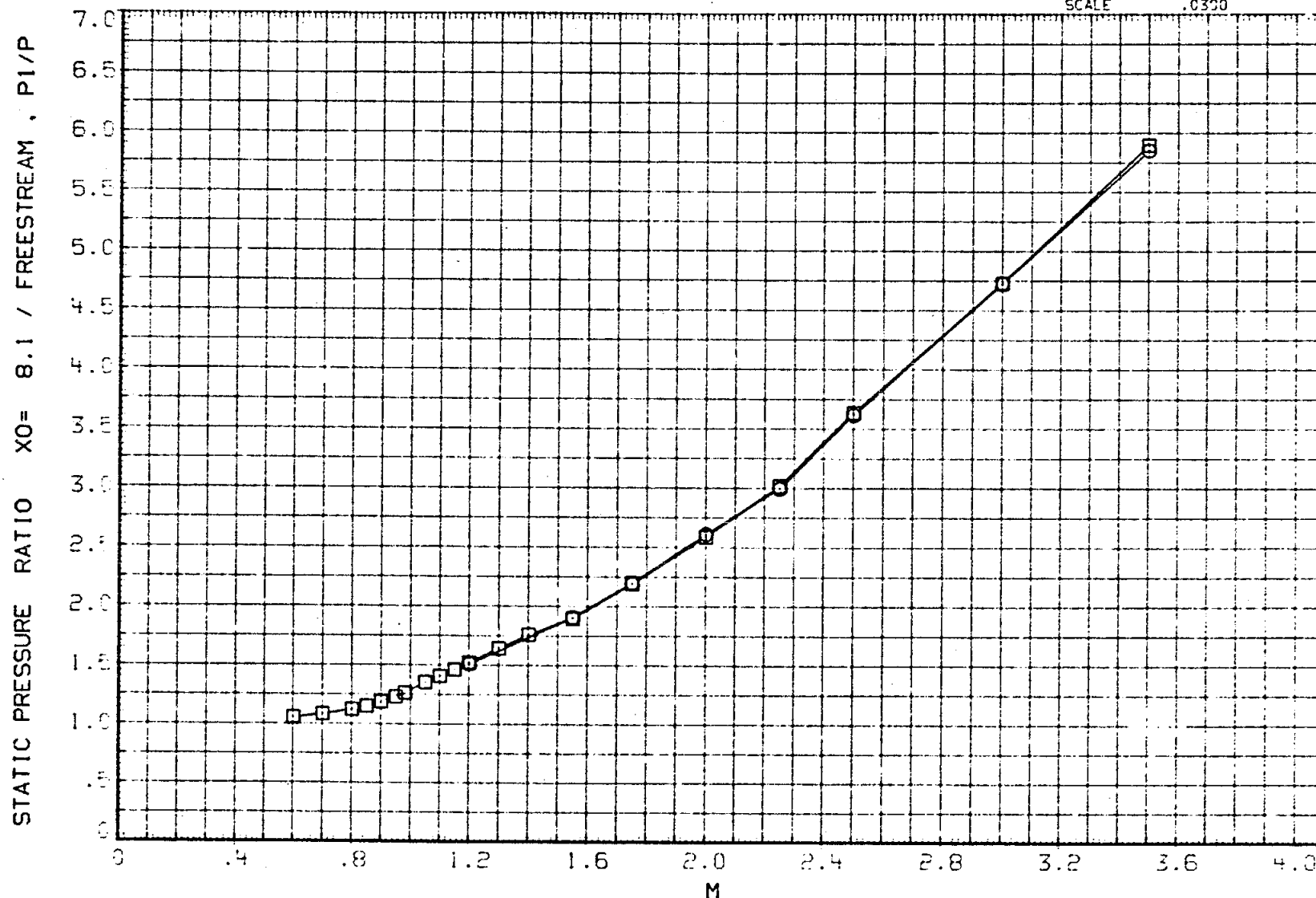


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(D) ALPHA = 18.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDCLAP	REFERENCE INFORMATION		
AE7B03	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	-5.000	.000	.000	-7.170	SPFF	2690.0000	50. FT.
AE7B13	□	ARC 11-97-87-094 OA161 ORBITER	-5.000	.000	.000	-7.170	LREF	474.8000	IN.
AE7B18	◇	DATA NOT AVAILABLE	-5.000	.000	2.500	-7.170	BREF	935.6800	IN.
AE7B23	△	DATA NOT AVAILABLE	-5.000	.000	5.000	-7.170	YMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0000	

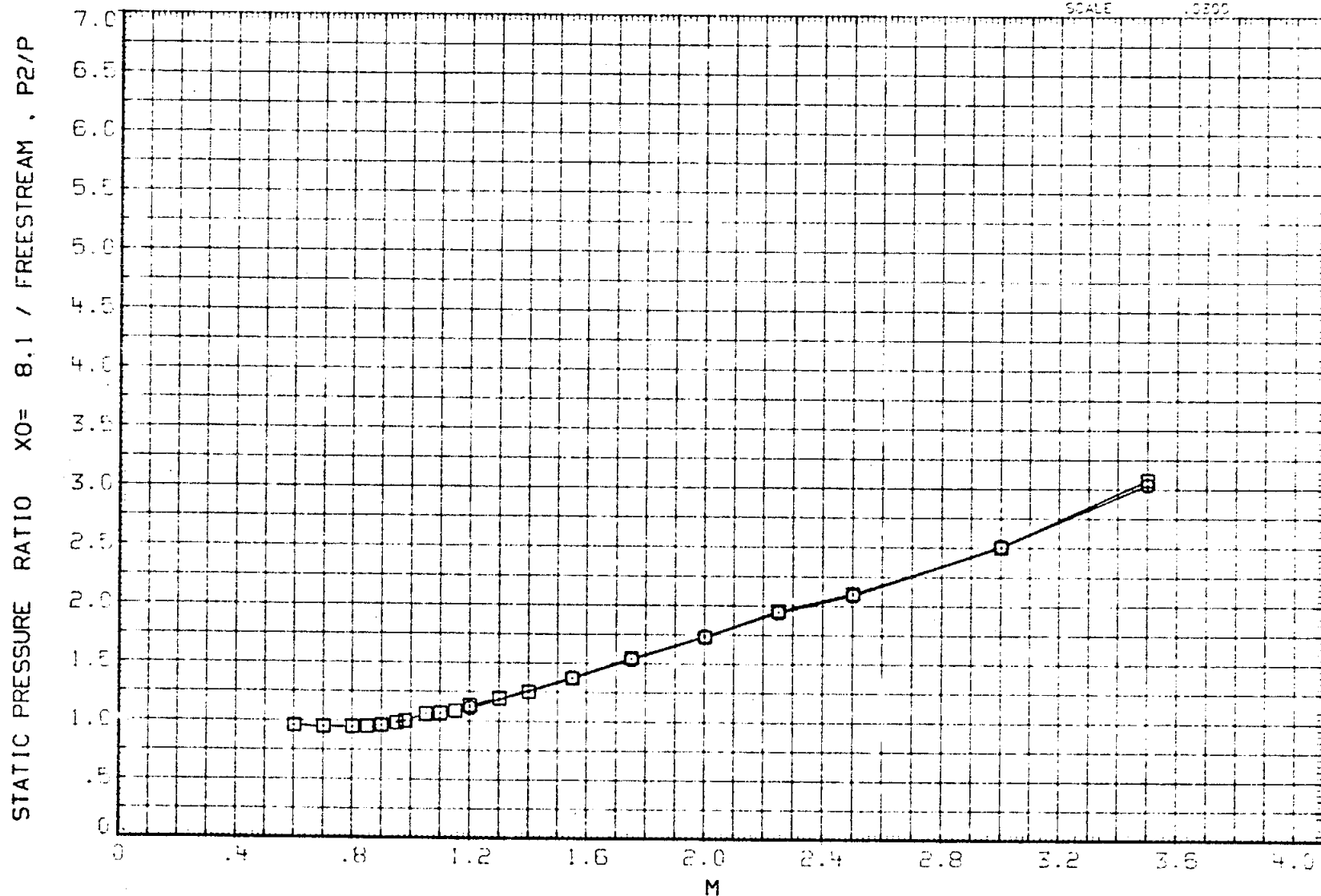


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(D) ALPHA = 18.00

DATA SET SYMBOL

CONFIGURATION

AE7803 ○ ARC 11-97-87-094 0A161 ORBITER + RAKES  
 AE7813 □ ARC 11-97-87-094 0A161 ORBITER  
 AE7818 ◇ DATA NOT AVAILABLE  
 AE7823 △ DATA NOT AVAILABLE

BETA	ELEVON	AILRON	BD/LAP
-5.000	.000	.000	-7.170
-5.000	.000	.000	-7.170
-5.000	.000	2.500	-7.170
-5.000	.000	5.000	-7.170

REFERENCE INFORMATION

SREF	2630.0000	50. FT.
LREF	474.8000	IN.
BREF	975.6000	IN.
XMRP	1076.6000	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

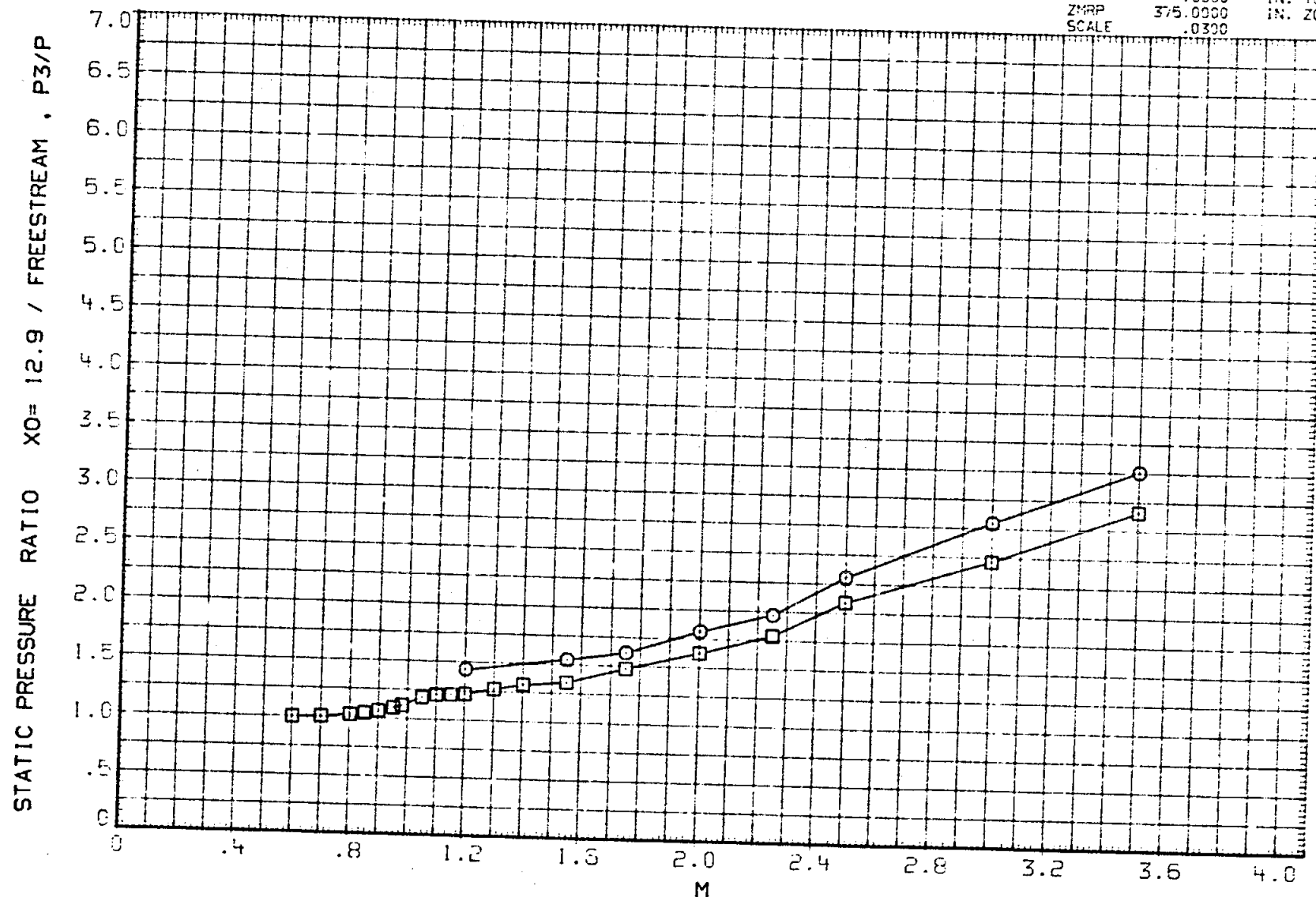


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(D) ALPHA = 18.00

DATA SET SYMBOL

CONFIGURATION

AE7B03 ○ ARC 11-97-87-004 OA161 ORBITER + RAKES  
 AE7B13 □ ARC 11-97-87-004 OA161 ORBITER  
 AE7B18 ◇ DATA NOT AVAILABLE  
 AE7B23 △ DATA NOT AVAILABLE

BETA	ELEVON	AILRON	BOFLAP
-5.000	.000	.000	-7.170
-5.000	.000	.000	-7.170
-5.000	.000	2.500	-7.170
-5.000	.000	5.000	-7.170

REFERENCE INFORMATION

SREF	2690.0000	SC.FT.
LREF	474.8000	IN.
BREF	935.6000	IN.
XMPP	1076.6000	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0000	

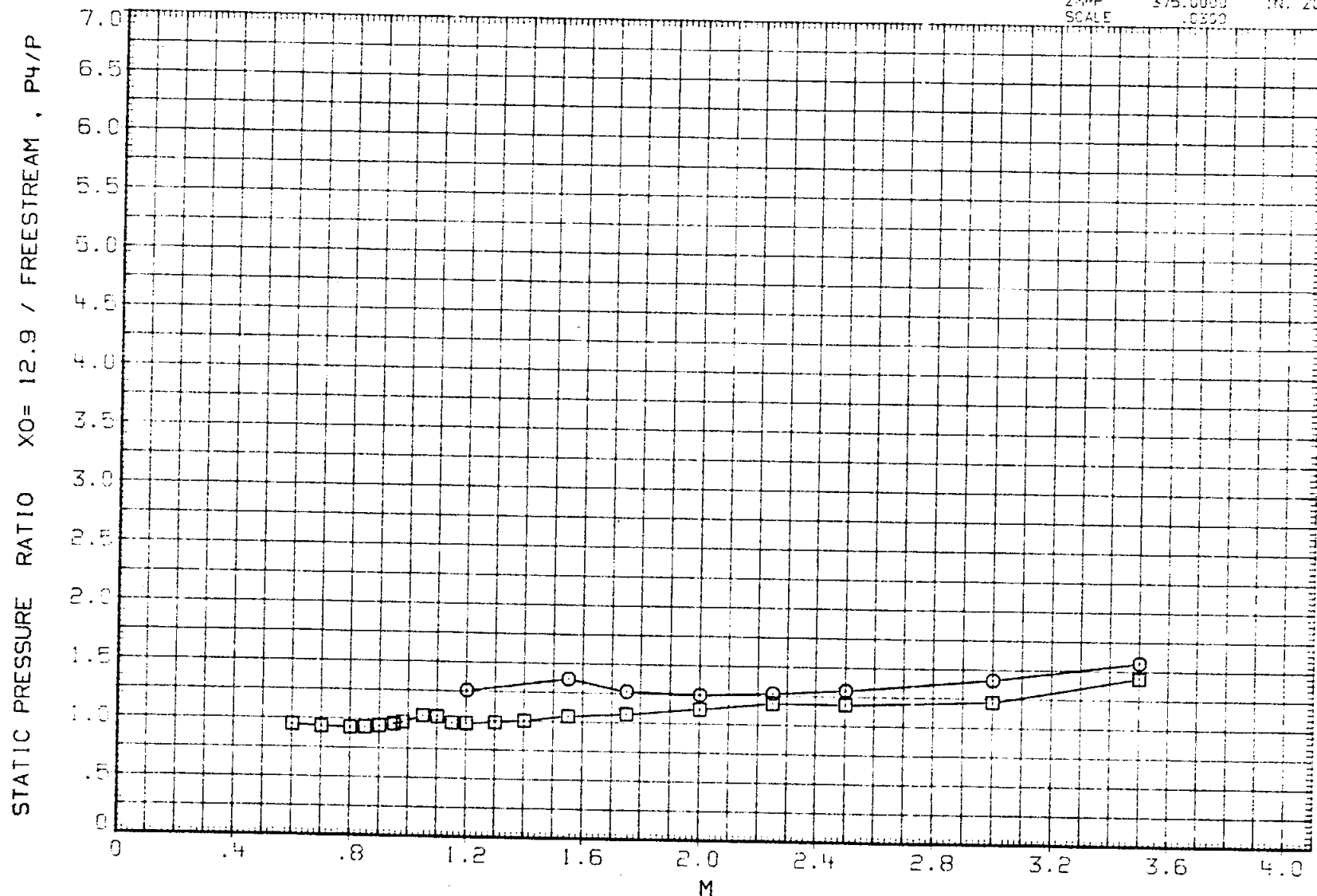


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(D) ALPHA = 18.00

## DATA SET SYMBOL

AET803  $\square$  ARC 11-97-87-094 OA161 ORBITER + RAKES  
 AET813  $\square$  ARC 11-97-87-094 OA161 ORBITER  
 AET818  $\diamond$  DATA NOT AVAILABLE  
 AET823  $\triangle$  DATA NOT AVAILABLE

## CONFIGURATION

BETA	ELEVON	AILRON	BDFLAP
-5.000	.000	.000	-7.170
-5.000	.000	.000	-7.170
-5.000	.000	2.500	-7.170
-5.000	.000	5.000	-7.170

## REFERENCE INFORMATION

SREF	2690.0000	SO. FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6900	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

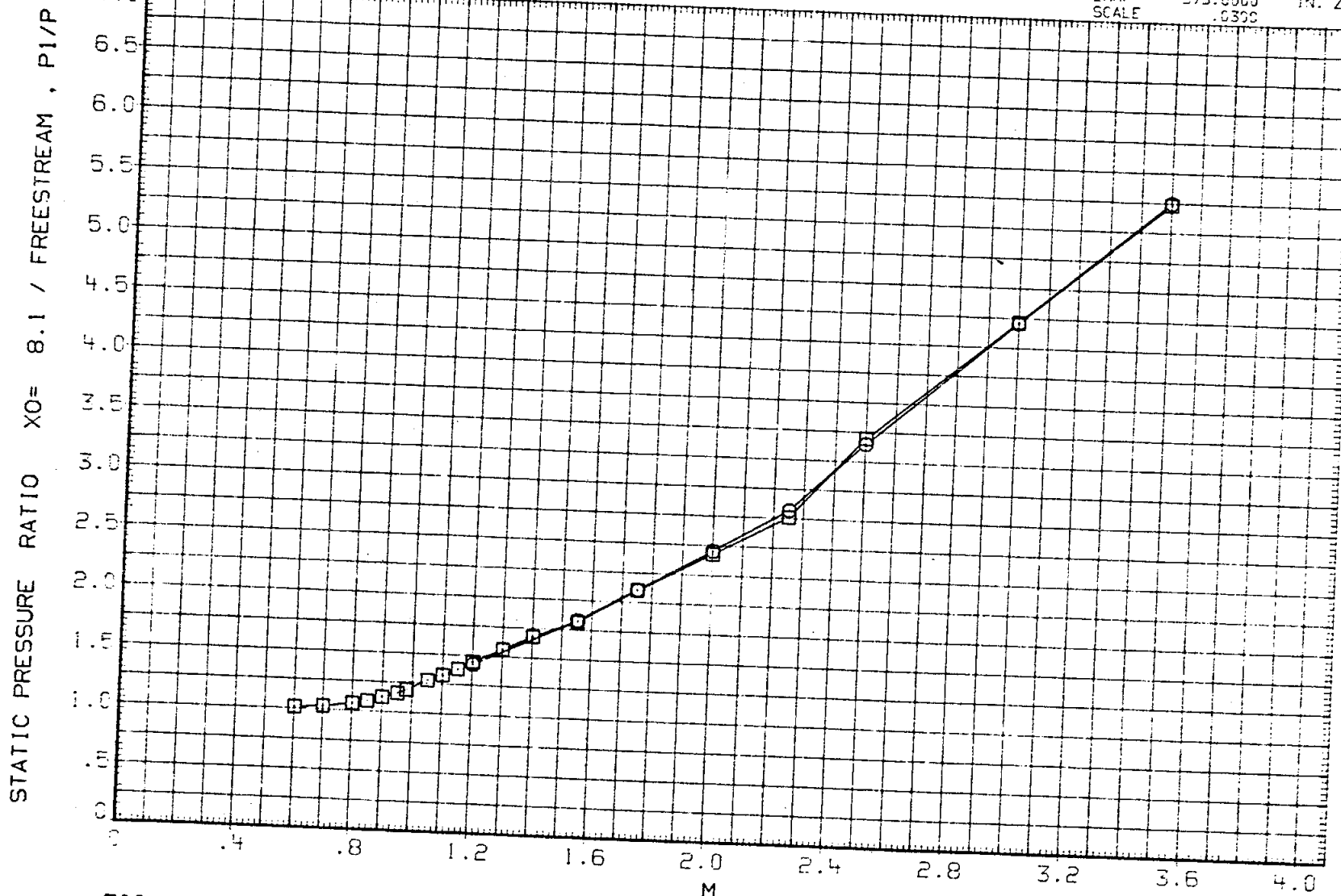


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(E) ALPHA = 24.00

ATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BOFLAP

REFERENCE INFORMATION

AE7803 ○ ARC 11-97-87-094 0A161 ORBITER + RAKES  
 AE7813 □ ARC 11-97-87-094 0A161 ORBITER  
 AE7818 ◇ DATA NOT AVAILABLE  
 AE7823 △ DATA NOT AVAILABLE

-5.000  
 -5.000  
 -5.000  
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.000  
 .000  
 2.500  
 5.000

-7.170  
 -7.170  
 -7.170  
 -7.170

SREF 2690.0000 SQ. FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

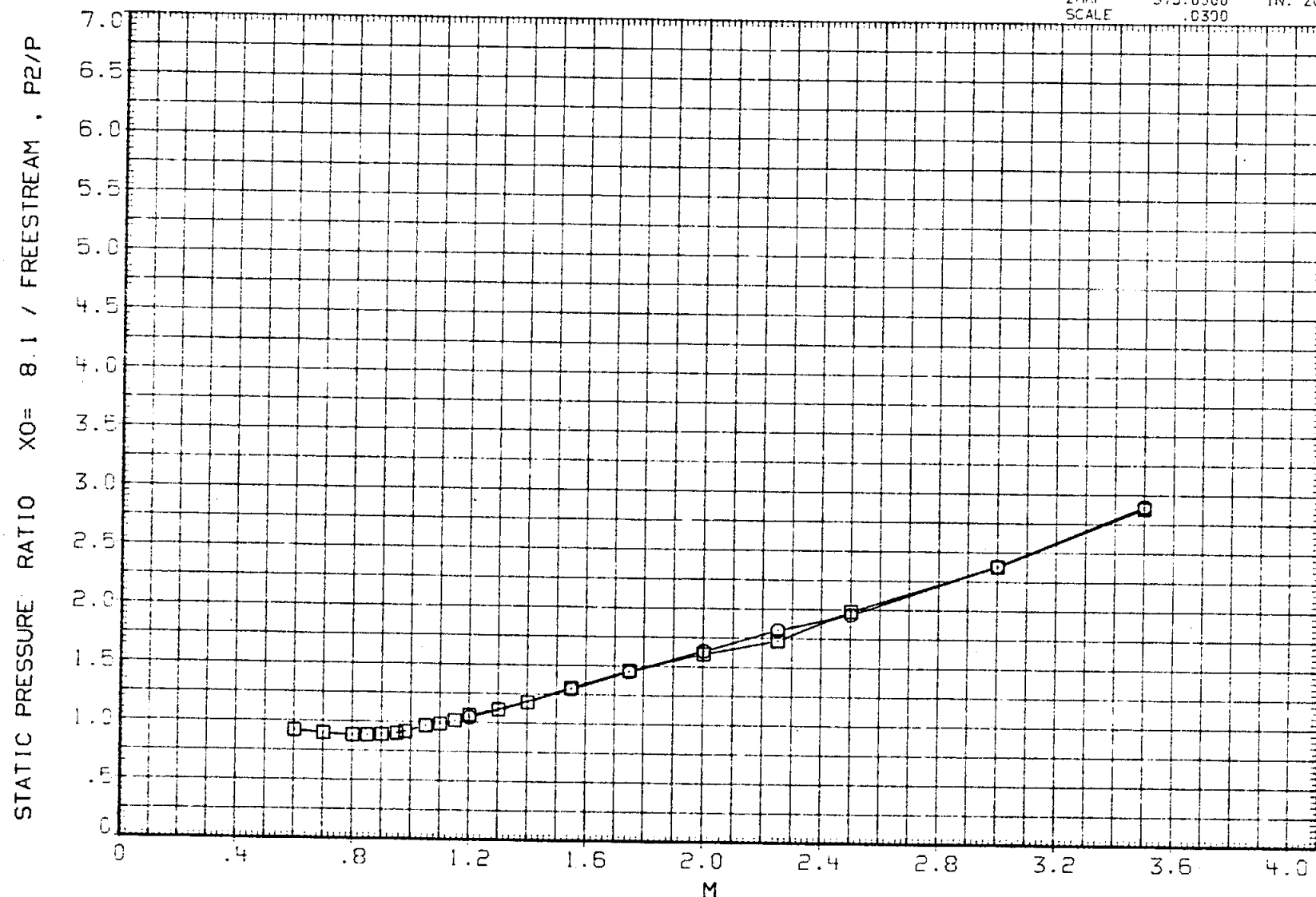


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(E) ALPHA = 24.00

ATA SET SYMBOL

CONFIGURATION

AE7803 ○ ARC 11-97-87-094 0A161 ORBITER + RAKES  
 AE7813 □ ARC 11-97-87-094 0A161 ORBITER  
 AE7818 ◇ DATA NOT AVAILABLE  
 AE7823 △ DATA NOT AVAILABLE

BETA

ELEVON

AILRON

BDFLAP

REFERENCE INFORMATION

-5.000 .000 .000 -7.170  
 -5.000 .000 .000 -7.170  
 -5.000 .000 2.500 -7.170  
 -5.000 .000 5.000 -7.170

SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 935.6800 IN.  
 XMRF 1076.6800 IN. XO  
 YMRF .0000 IN. YO  
 ZMRF 375.0000 IN. ZO  
 SCALE .0300

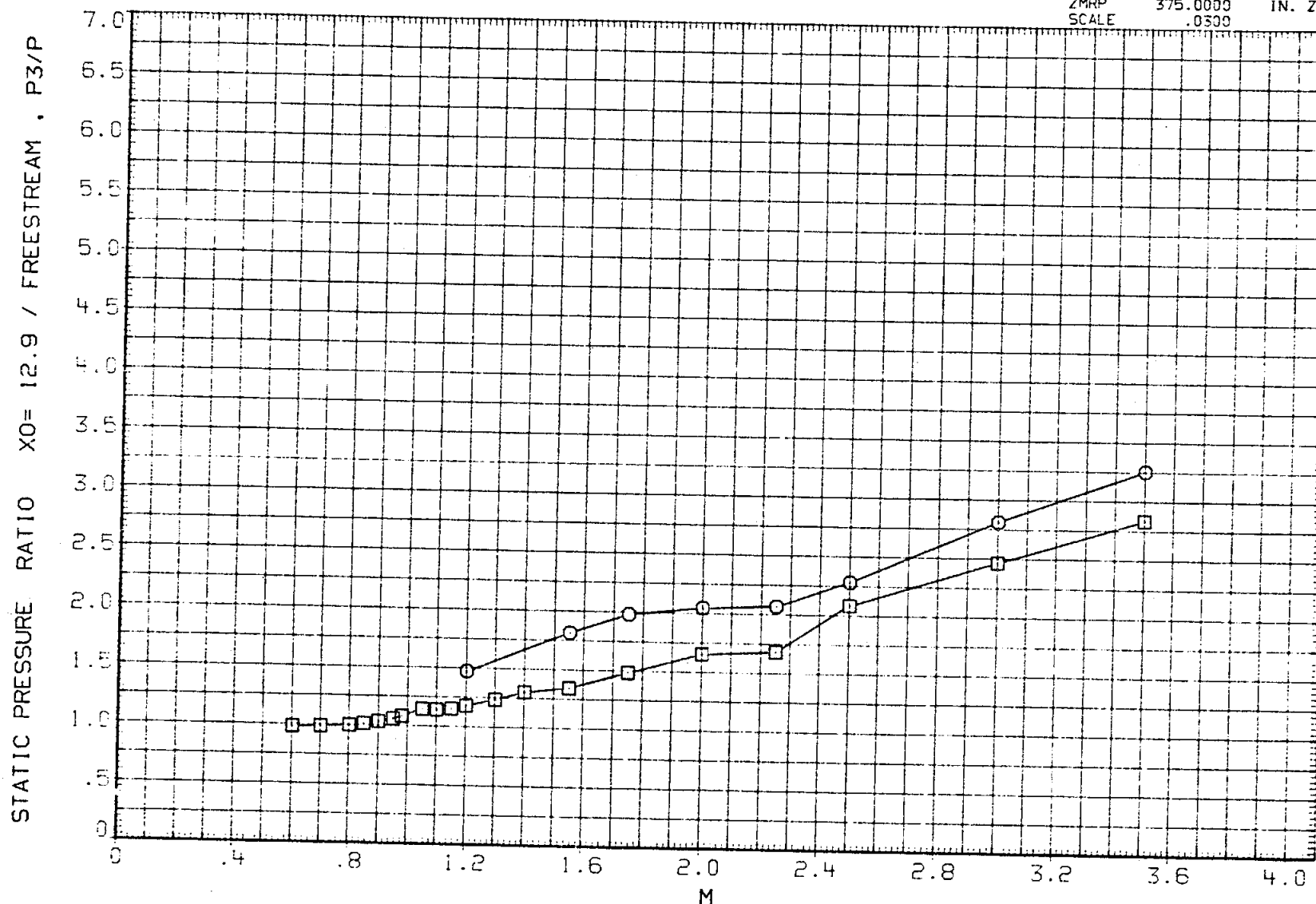


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(E) ALPHA = 24.00

TA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BDFLAP

REFERENCE INFORMATION

E7803 ○ ARC 11-97-87-094 0A161 ORBITER + RAKES  
 E7813 □ ARC 11-97-87-094 0A161 ORBITER  
 E7818 ◇ DATA NOT AVAILABLE  
 E7823 △ DATA NOT AVAILABLE

-5.000

.000

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-7.170

SREF

2690.0000

SQ.FT.

-5.000

.000

.000

-7.170

LREF

474.8000

IN.

-5.000

.000

2.500

-7.170

BREF

936.6800

IN.

-5.000

.000

5.000

-7.170

XMPP

1076.6800

IN. XO

YMPP

.0000

IN. YO

ZMPP

375.0000

IN. ZO

SCALE

.0390

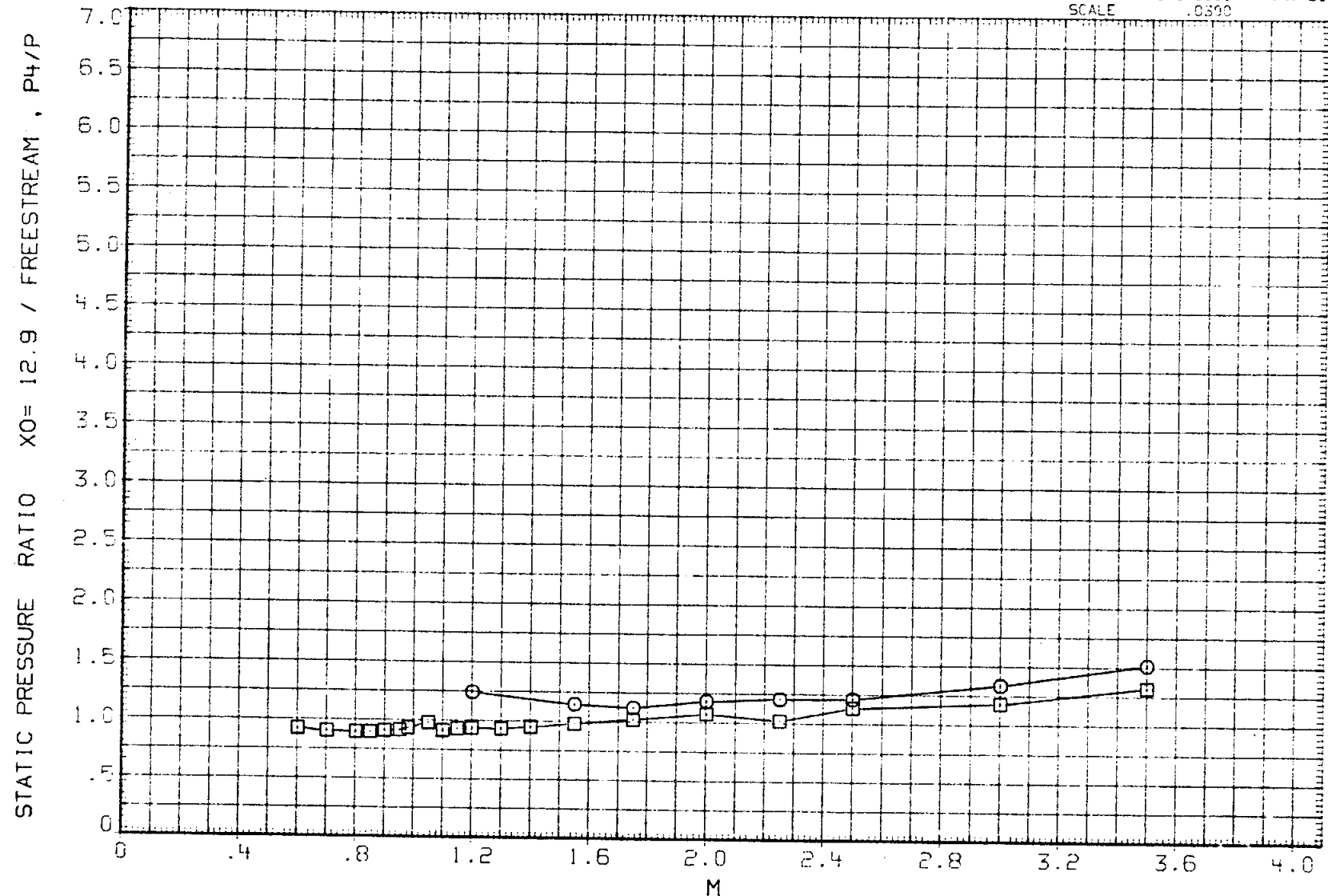


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(E) ALPHA = 24.00



TA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
17805	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	SREF	2690.0000	50. FT.
17815	□	ARC 11-97-87-094 OA161 ORBITER	.000	.000	.000	-7.170	LREF	474.8000	IN.
17820	△	ARC 11-97-87-094 OA161 ORBITER	.000	.000	2.500	-7.170	BREF	936.6800	IN.
17825	◇	ARC 11-97-87-094 OA161 ORBITER	.000	.000	5.000	-7.170	XMRP	1076.6800	IN. XO
17801	▽	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000	.000		-7.170	YMRP	.0000	IN. YO
17802	◇	ARC 11-97-87-094 OA161 ORBITER - WING	.000			-7.170	ZMRP	375.0000	IN. ZO
							SCALE	.0300	

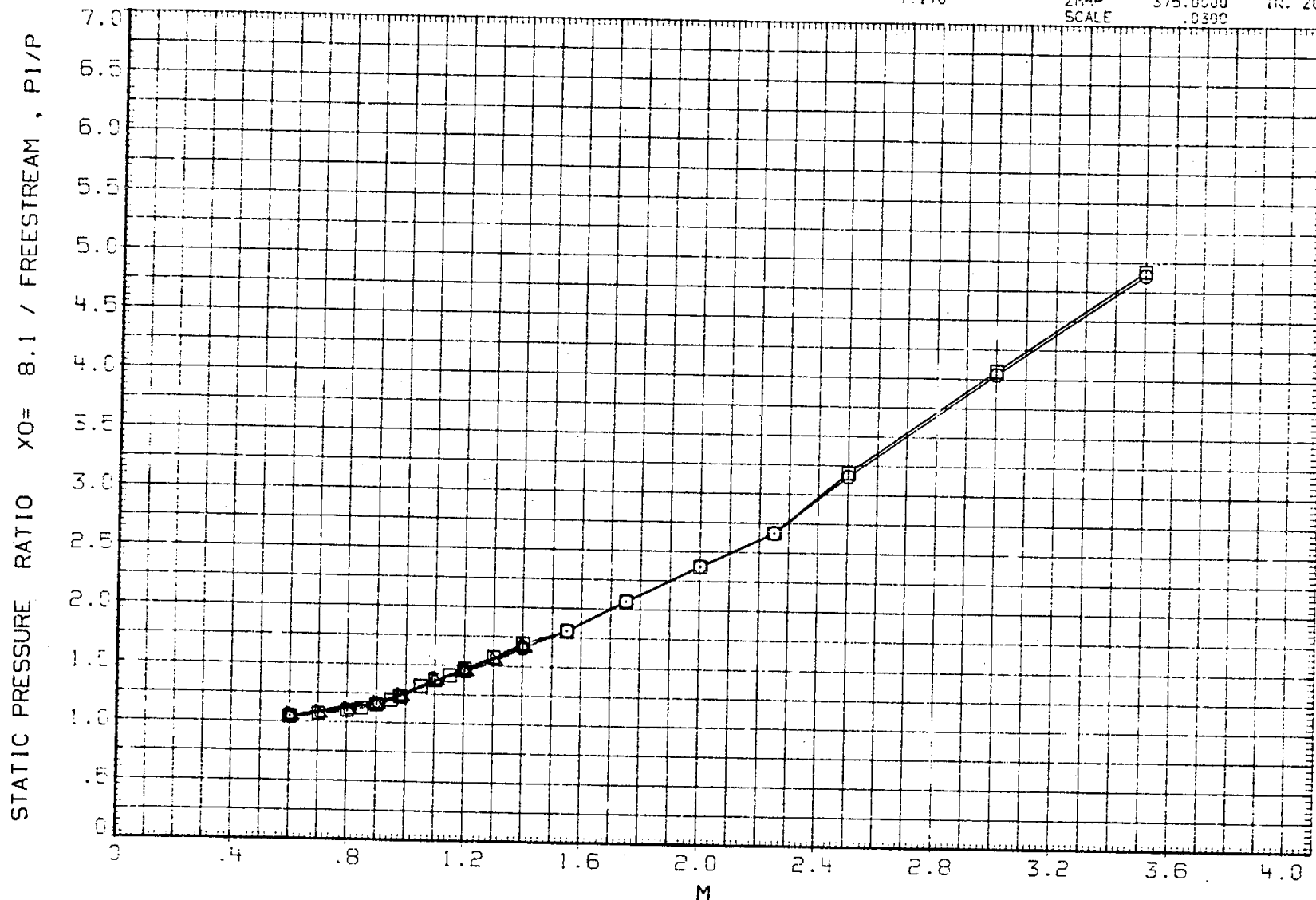


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

A) ALPHA = .00

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AIRLON	BDCLAP	REFERENCE INFORMATION		
AE7805	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
AE7815	ARC 11-97-87-094 OA161 ORBITER	.000	.000	.000	-7.170	LREF	474.8000	IN.
AE7820	ARC 11-97-87-094 OA161 ORBITER	.000	.000	2.500	-7.170	BREF	935.6800	IN.
AE7825	ARC 11-97-87-094 OA161 ORBITER	.000	.000	5.000	-7.170	XMFP	1076.6800	IN. XO
AE7831	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000	.000		-7.170	YMFP	.0000	IN. YO
AE7832	ARC 11-97-87-094 OA161 ORBITER - WING	.000	.000		-7.170	ZMFP	375.0000	IN. ZO
						SCALE	.0300	

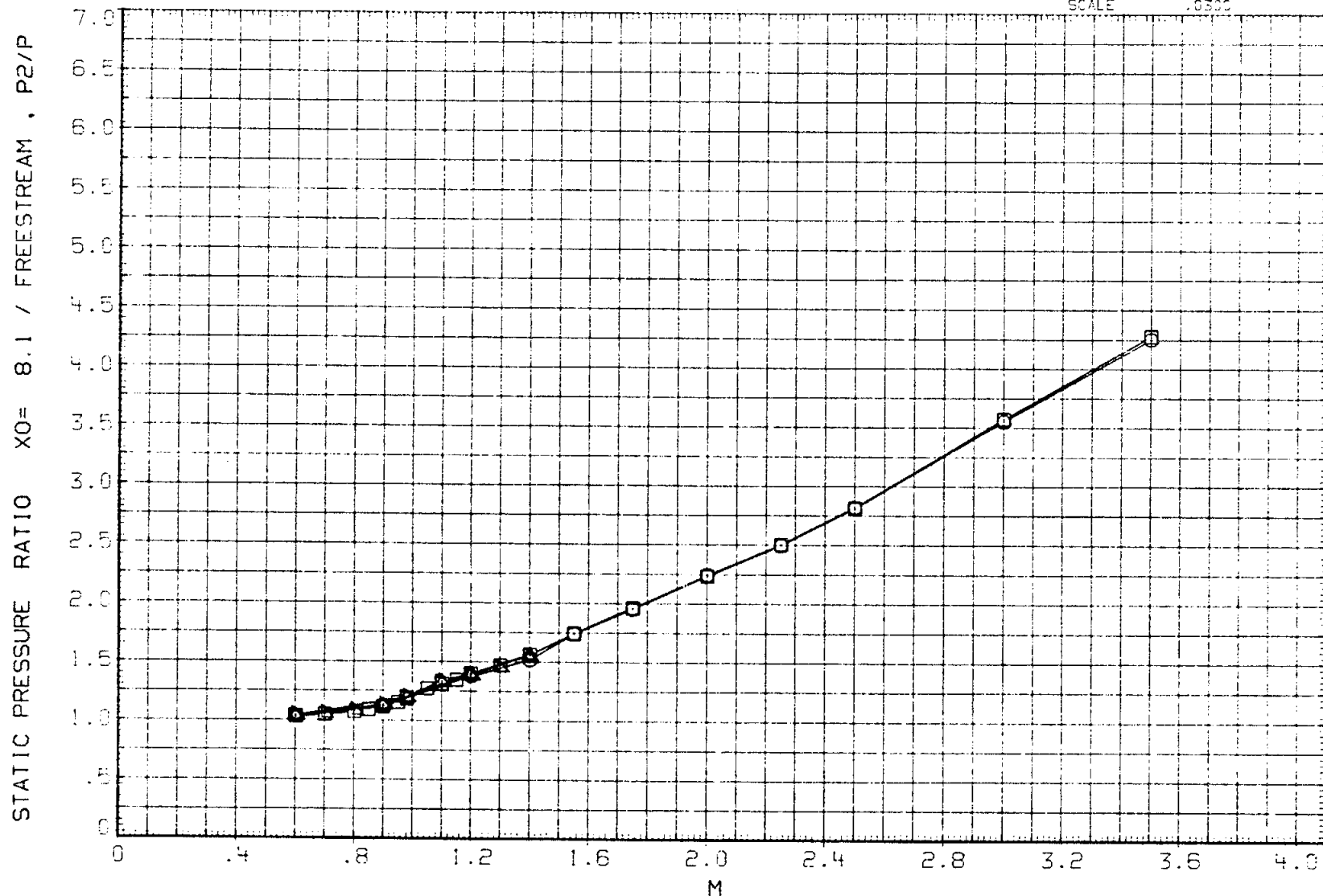


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(A) ALPHA = .00

# DATA SET SYMBOL

AS7805	○	ARC 11-97-87-094	0A161 ORBITER + RAKES
AS7815	□	ARC 11-97-87-094	0A161 ORBITER
AS7820	△	ARC 11-97-87-094	0A161 ORBITER
AS7825	◇	ARC 11-97-87-094	0A161 ORBITER
AS7831	▽	ARC 11-97-87-094	0A161 ORBITER - WING + RAKES
AS7832	◻	ARC 11-97-87-094	0A161 ORBITER - WING

## CONFIGURATION

BETA	ELEVON	AILRON	BDFLAP
.000	.000	.000	-7.170
.000	.000	.000	-7.170
.000	.000	2.500	-7.170
.000	.000	5.000	-7.170
.000	.000		-7.170
.000			-7.170

## REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	935.6000	IN.
XMPP	1075.6000	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0390	

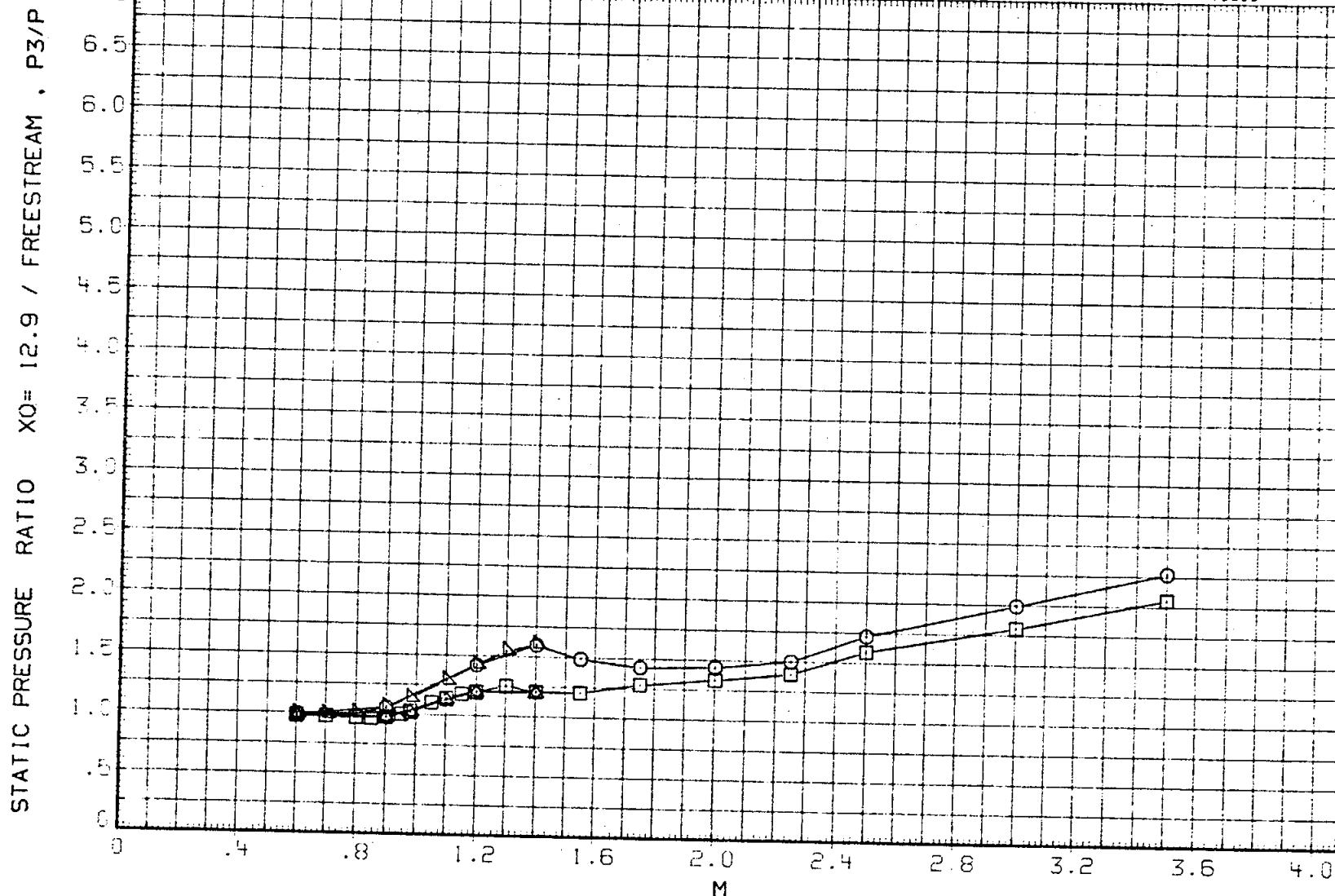


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(A) ALPHA = .00

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BDFLAP

REFERENCE INFORMATION

ARC 11-97-87-094	○	ARC 11-97-87-094	0A161 ORBITER + RAKES	.000	.000	.000	-7.170	SREF	2690.0000	50. FT.
ARC 11-97-87-094	□	ARC 11-97-87-094	0A161 ORBITER	.000	.000	.000	-7.170	LREF	474.8000	IN.
ARC 11-97-87-094	△	ARC 11-97-87-094	0A161 ORBITER	.000	.000	2.500	-7.170	BREF	936.6800	IN.
ARC 11-97-87-094	▽	ARC 11-97-87-094	0A161 ORBITER	.000	.000	5.000	-7.170	XYMP	1076.6850	IN. X0
ARC 11-97-87-094	◇	ARC 11-97-87-094	0A161 ORBITER - WING + RAKES	.000			-7.170	YMP	.0000	IN. Y0
ARC 11-97-87-094	◇	ARC 11-97-87-094	0A161 ORBITER - WING	.000			-7.170	ZMP	375.0000	IN. Z0
								SCALE	.0200	

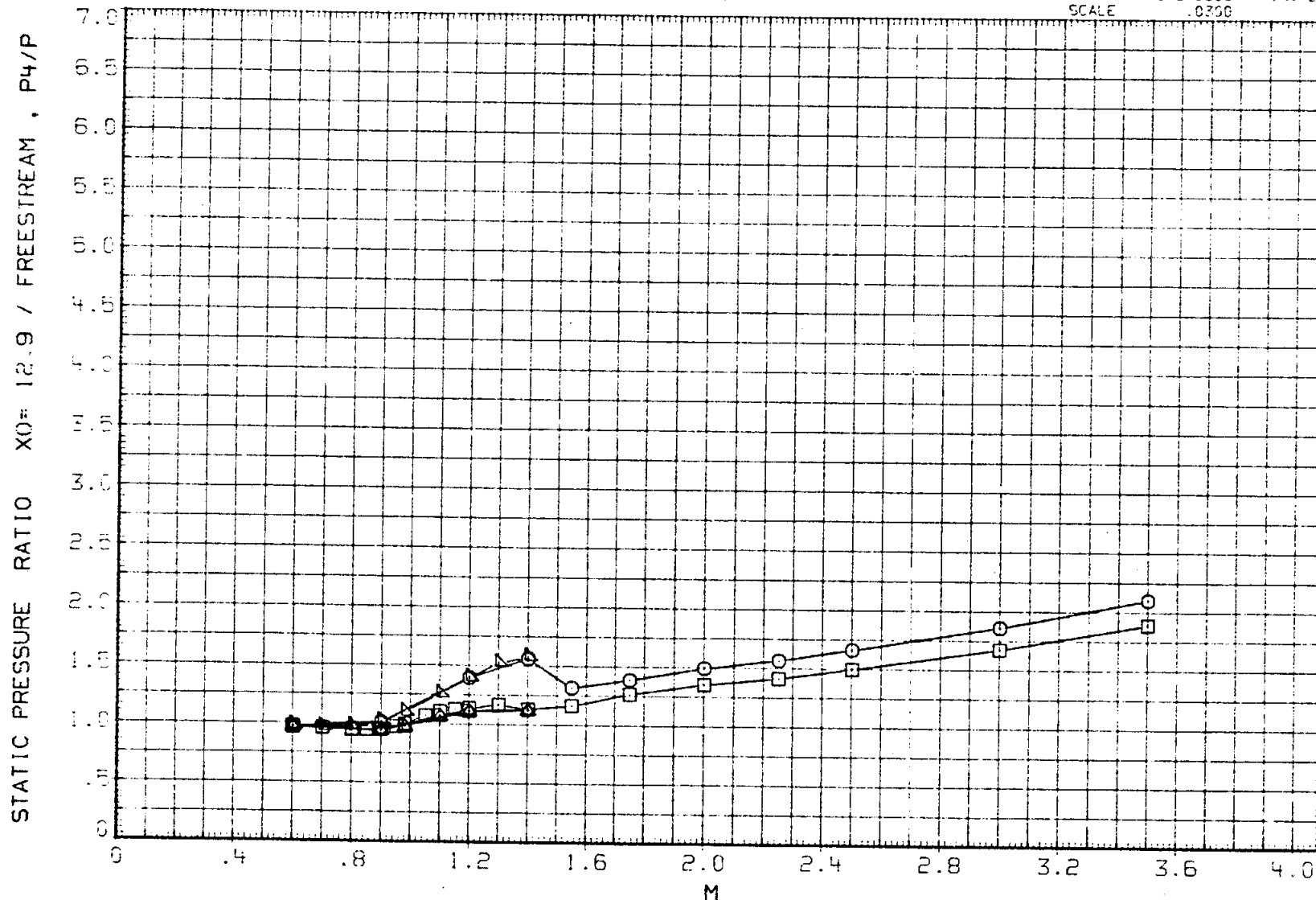


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(A) ALPHA = .00

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BDFLAP

REFERENCE INFORMATION

AE7805 ○ ARC 11-97-87-094 OA161 ORBITER + RAKES  
 AE7815 □ ARC 11-97-87-094 OA161 ORBITER  
 AE7820 ◇ DATA NOT AVAILABLE  
 AE7825 △ DATA NOT AVAILABLE  
 AE7801 ▽ DATA NOT AVAILABLE  
 AE7802 ▢ DATA NOT AVAILABLE

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SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE .0300

STATIC PRESSURE RATIO  $X_0 = 8.1 / \text{FREESTREAM } P_1/P$

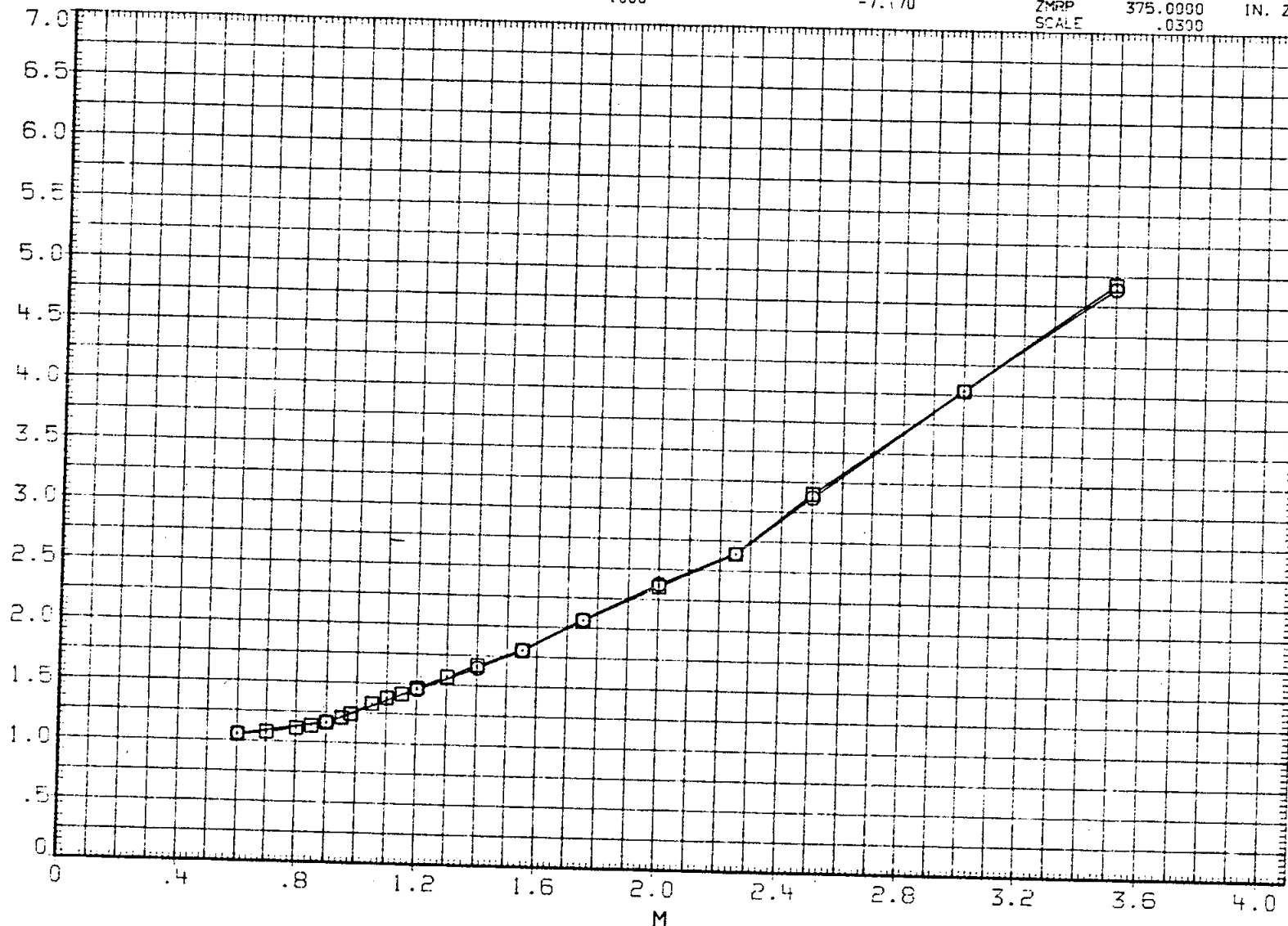


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(B) ALPHA = 6.00

## DATA SET SYMBOL

## CONFIGURATION

BETA

ELEVON

AILRON

BDFLAP

## REFERENCE INFORMATION

AE7805 ○ ARC 11-97-87-094 OA161 ORBITER + RAKES  
 AE7815 □ ARC 11-97-87-094 OA161 ORBITER  
 AE7820 △ DATA NOT AVAILABLE  
 AE7825 ◇ DATA NOT AVAILABLE  
 AE7801 ▽ DATA NOT AVAILABLE  
 AE7802 ▢ DATA NOT AVAILABLE

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 -7.170  
 -7.170  
 -7.170  
 -7.170  
 -7.170

SREF 2690.0000 SQ. FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

STATIC PRESSURE RATIO  $XO = 8.1 / \text{FREESTREAM } P2/P$

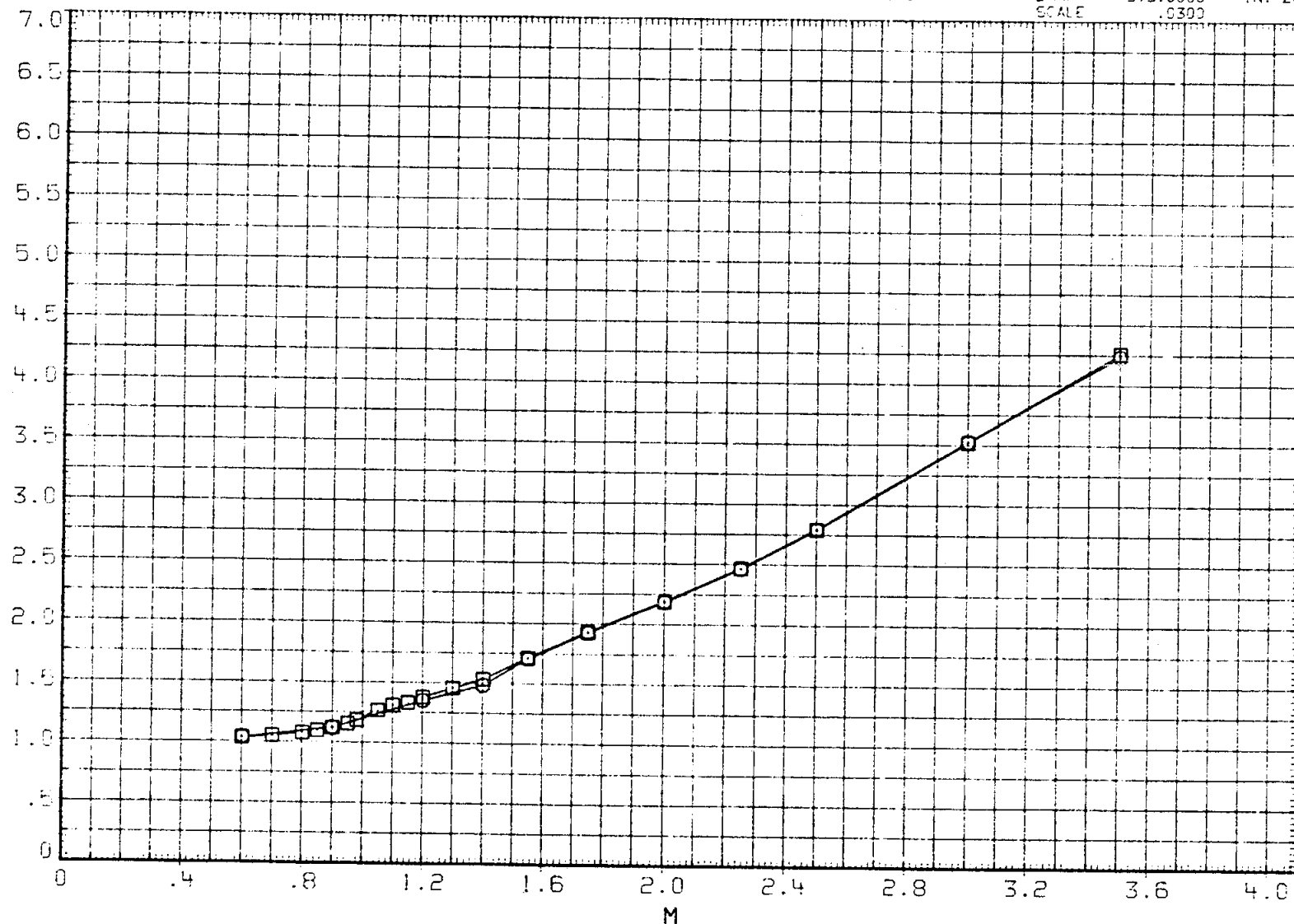


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(B) ALPHA = 6.00

DATA SET SYMBOL

DATA SET SYMBOL	CONFIGURATION
AE7805	ARC 11-97-87-094 0A161 ORBITER + RAKES
AE7815	ARC 11-97-87-094 0A161 ORBITER
AE7820	DATA NOT AVAILABLE
AE7825	DATA NOT AVAILABLE
AE7831	DATA NOT AVAILABLE
AE7832	DATA NOT AVAILABLE

BETA

ELEVON

AILRON

BDFLAP

REFERENCE INFORMATION

SREF	2690.0000	SQ. FT.
LREF	474.8000	IN.
BREF	936.6900	IN.
XMPP	1076.6800	IN. XO
YMP	.0000	IN. YO
ZMP	375.0000	IN. ZO
SCALE	.0300	

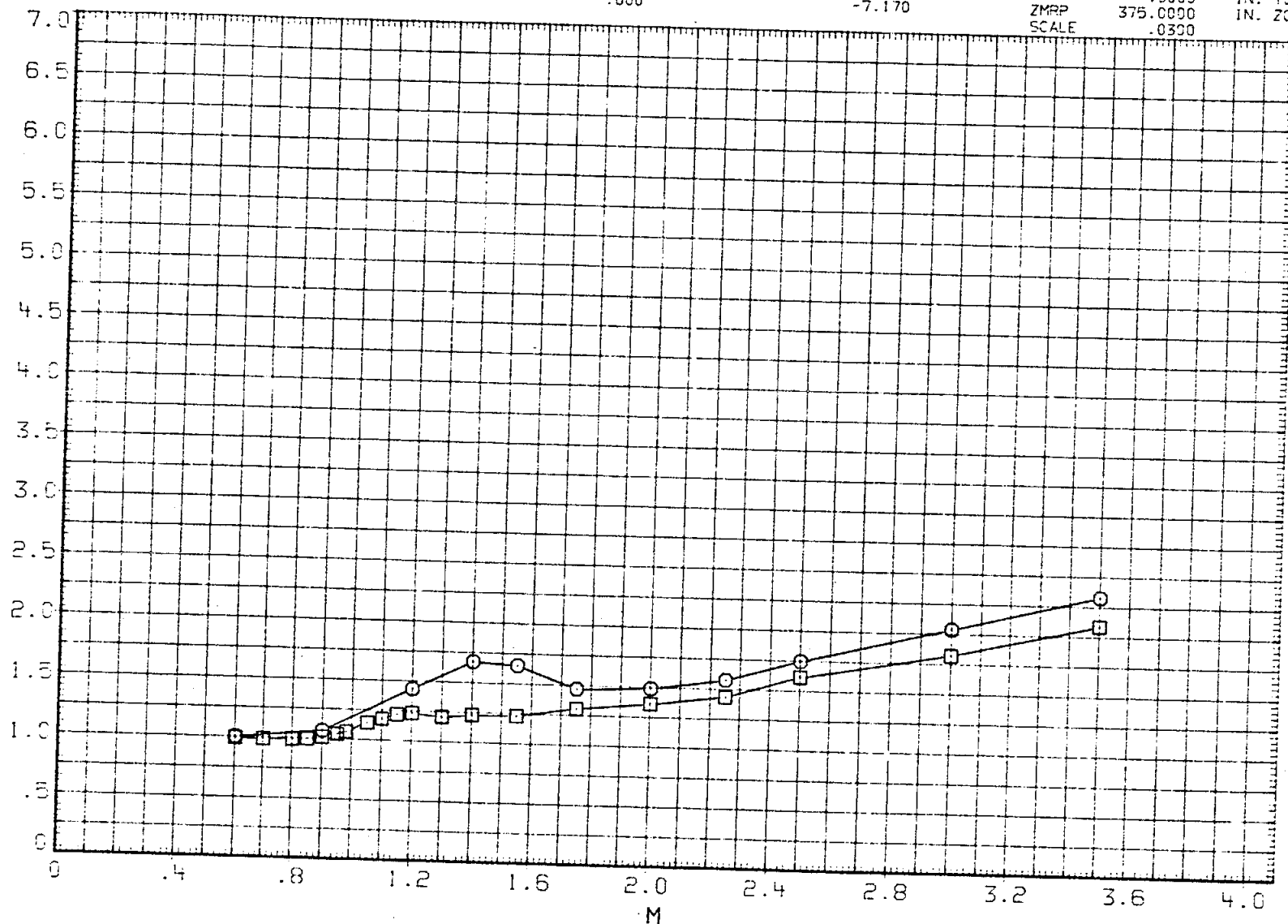
STATIC PRESSURE RATIO  $X_0 = 12.9$  / FREESTREAM,  $P_3/P$ 

FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(B) ALPHA = 6.00

ATA SET SYMBOL

CONFIGURATION

AETB05 ○ ARC 11-97-87-094 OA161 ORBITER + PAKES  
 AETB15 □ ARC 11-97-87-094 OA161 ORBITER  
 AETB20 ◇ DATA NOT AVAILABLE  
 AETB25 △ DATA NOT AVAILABLE  
 AETB30 ⊠ DATA NOT AVAILABLE  
 AETB32 □ DATA NOT AVAILABLE

BETA	ELEVON	AILRON	BDFLAP
.000	.000	.000	-7.170
.000	.000	.000	-7.170
.000	.000	2.500	-7.170
.000	.000	5.000	-7.170
.000	.000		-7.170
.000			-7.170

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	935.5800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

STATIC PRESSURE RATIO X0= 12.9 / FREESTREAM , P4/P

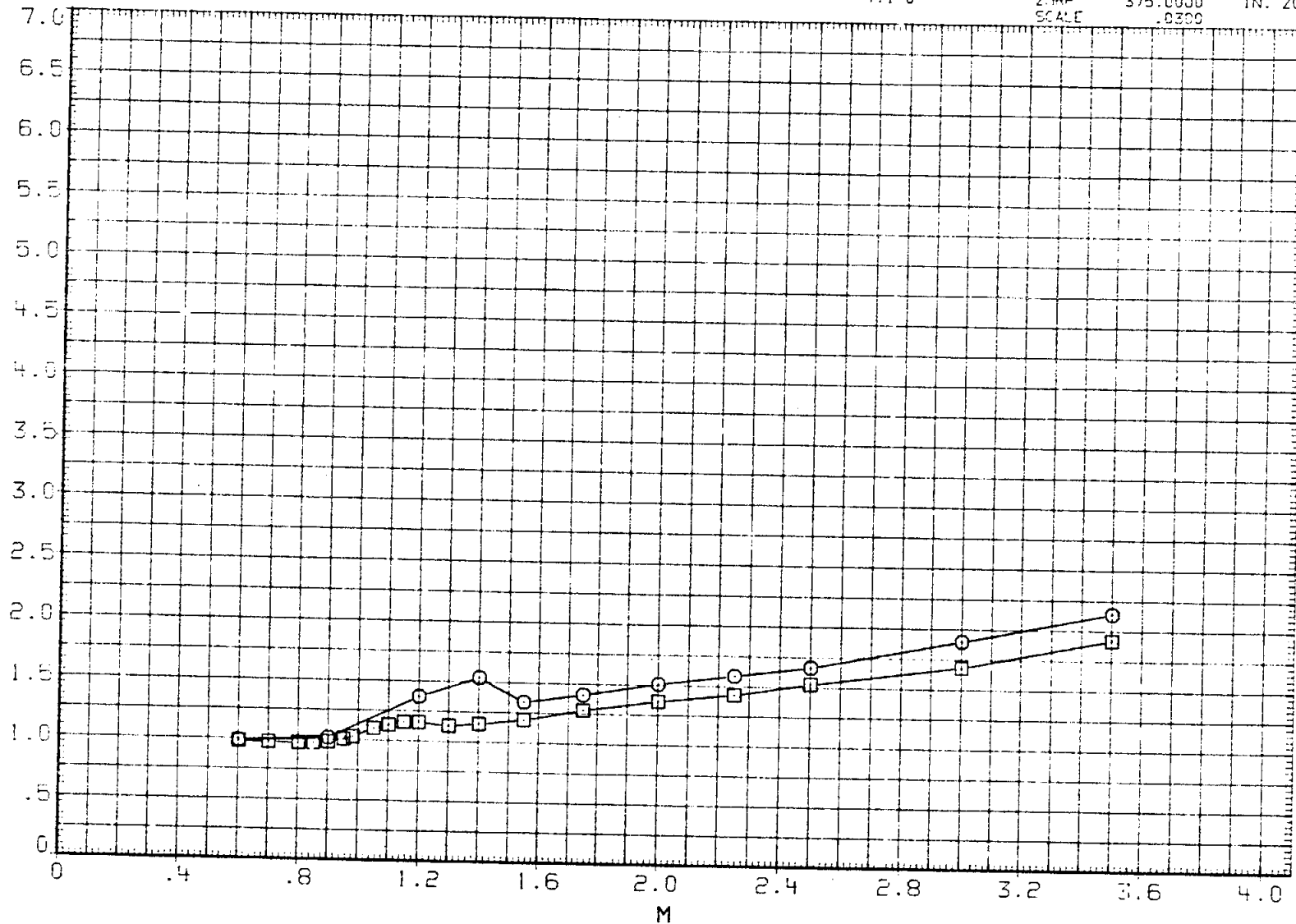


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(B) ALPHA = 6.00



DATA SET SYMBOL

ARC 11-97-87-094  
ARC 11-97-87-094  
ARC 11-97-87-094  
ARC 11-97-87-094  
ARC 11-97-87-094  
ARC 11-97-87-094

○  
□  
△  
◇  
▽  
◇

CONFIGURATION

ARC 11-97-87-094 0A161 ORBITER + RAKES  
ARC 11-97-87-094 0A161 ORBITER  
ARC 11-97-87-094 0A161 ORBITER  
ARC 11-97-87-094 0A161 ORBITER  
ARC 11-97-87-094 0A161 ORBITER - WING + RAKES  
ARC 11-97-87-094 0A161 ORBITER - WING

BETA

.000  
.000  
.000  
.000  
.000  
.000

ELEVON

.000  
.000  
.000  
.000  
.000  
.000

AILRON

.000  
.000  
.000  
2.500  
5.000

BOFLAP

-7.170  
-7.170  
-7.170  
-7.170  
-7.170  
-7.170

REFERENCE INFORMATION

SREF 2690.0000 SQ. FT.  
LREF 474.8000 IN.  
SREF 936.6800 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0500

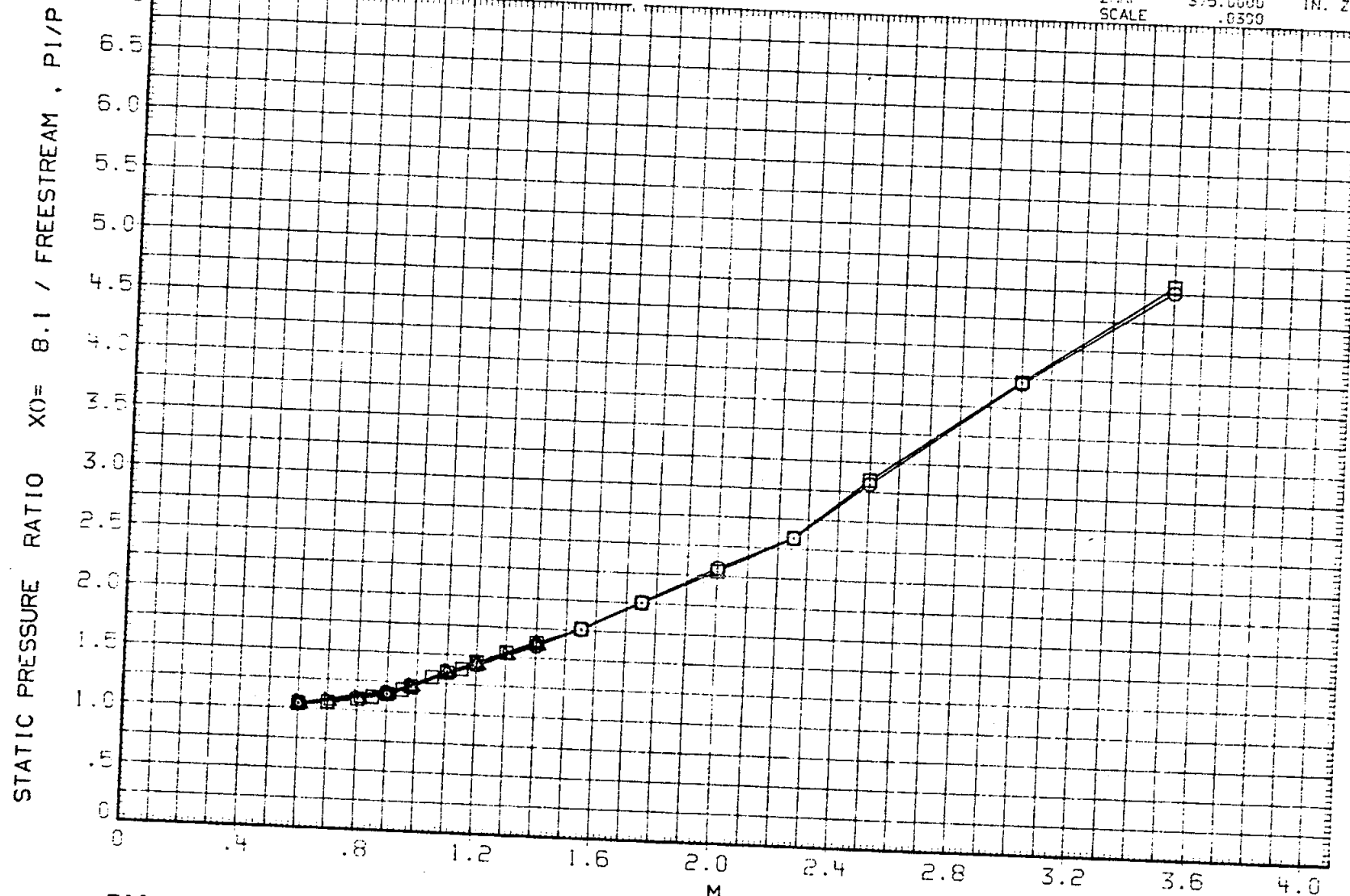


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(C) ALPHA = 12.00

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BDFLAP

REFERENCE INFORMATION

AE7805  
AE7815  
AE7820  
AE7825  
AE7831  
AE7832

○  
□  
△  
▽  
◇

ARC 11-97-87-094 OA161 ORBITER + RAKES  
ARC 11-97-87-094 OA161 ORBITER  
ARC 11-97-87-094 OA161 ORBITER  
ARC 11-97-87-094 OA161 ORBITER  
ARC 11-97-87-094 OA161 ORBITER - WING + RAKES  
ARC 11-97-87-094 OA161 ORBITER - WING

.000 .000 .000 -7.175  
.000 .000 .000 -7.175  
.000 .000 2.500 -7.175  
.000 .000 5.000 -7.175  
.000 .000 -7.175  
.000 .000 -7.175

SREF 2590.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. X0  
YMRP .0000 IN. Y0  
ZMRP 375.0000 IN. Z0  
SCALE .0500

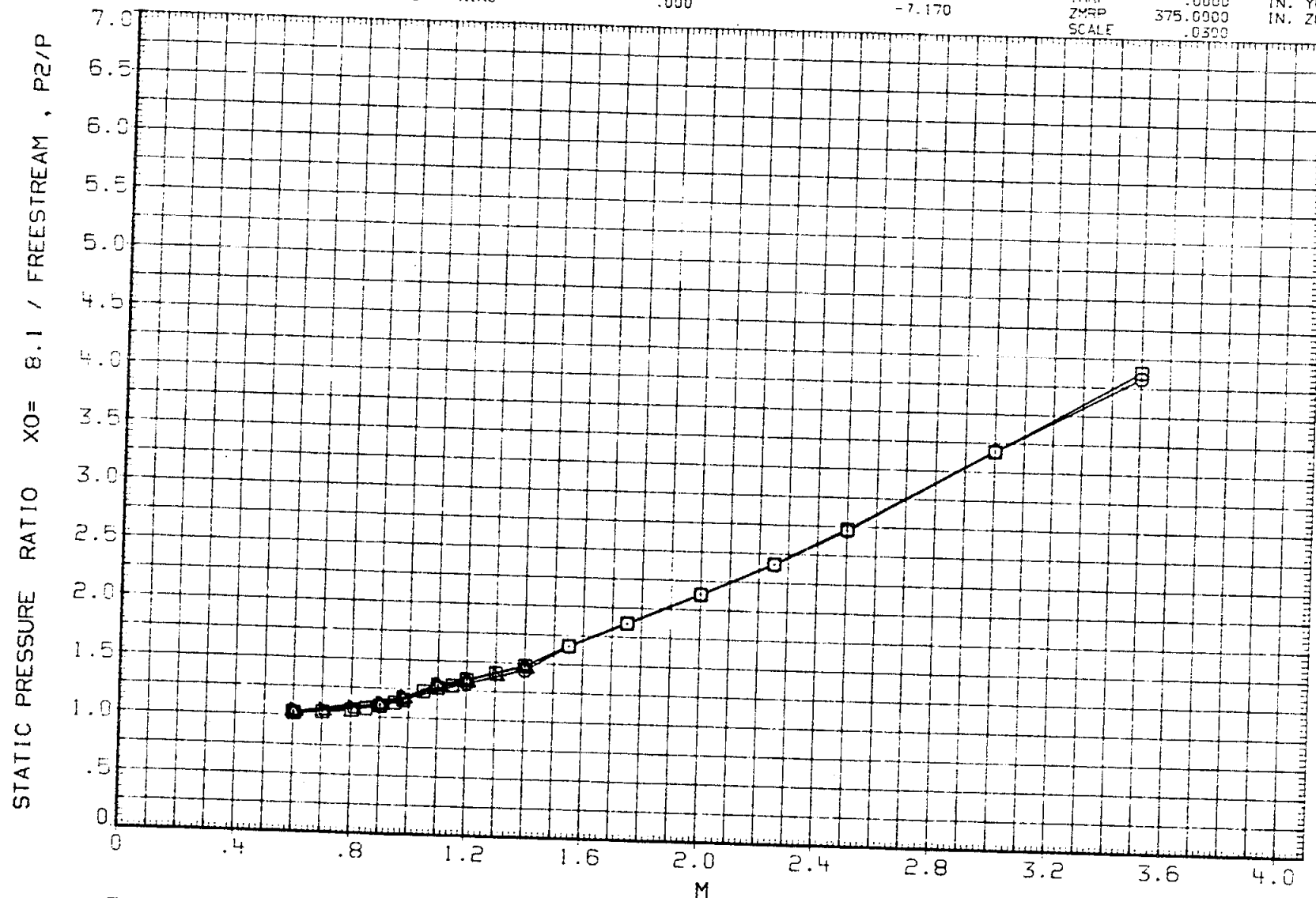


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(C) ALPHA = 12.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
AE7805	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
AE7806	□	ARC 11-97-87-094 0A161 ORBITER	.000	.000	.000	-7.170	LREF	474.8000	IN.
AE7807	◇	ARC 11-97-87-094 0A161 ORBITER	.000	.000	2.500	-7.170	BREF	936.6800	IN.
AE7808	△	ARC 11-97-87-094 0A161 ORBITER	.000	.000	5.000	-7.170	XMPP	1075.6800	IN. XO
AE7809	▽	ARC 11-97-87-094 0A161 ORBITER - WING + RAKES	.000	.000		-7.170	YMPP	.0000	IN. YO
AE7810	◇	ARC 11-97-87-094 0A161 ORBITER - WING	.000			-7.170	ZMPP	375.0000	IN. ZO
							SCALE	.0300	

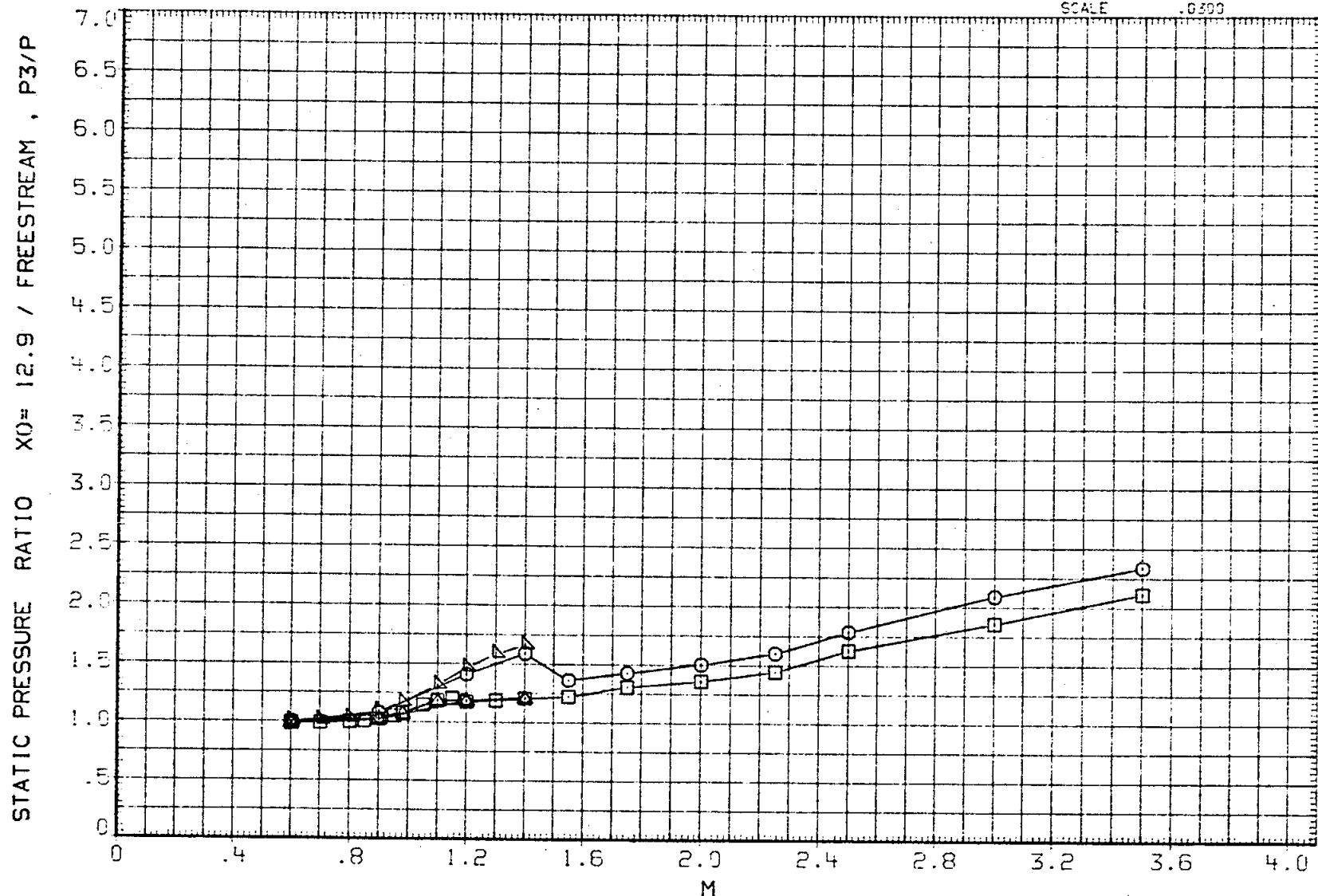


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(C) ALPHA = 12.00

## DATA SET SYMBOL

## CONFIGURATION

## BETA

## ELEVON

## AILRON

## BDFLAP

## REFERENCE INFORMATION

AE7805	○	ARC 11-97-87-094	OA161 ORBITER + RAKES	.000	.000	.000	-7.170	SREF	2690.0000	50. FT.
AE7815	□	ARC 11-97-87-094	OA161 ORBITER	.000	.000	.000	-7.170	LREF	474.8000	IN.
AE7820	◇	ARC 11-97-87-094	OA161 ORBITER	.000	.000	.000	-7.170	BREF	935.6900	IN.
AE7825	△	ARC 11-97-87-094	OA161 ORBITER	.000	.000	2.500	-7.170	XMPP	1075.5800	IN. XO
AE7831	▽	ARC 11-97-87-094	OA161 ORBITER - WING + RAKES	.000	.000	5.000	-7.170	YMPP	.0000	IN. YO
AE7802	◇	ARC 11-97-87-094	OA161 ORBITER - WING	.000	.000		-7.170	ZMPP	375.0000	IN. ZO
				.000				SCALE	.0300	

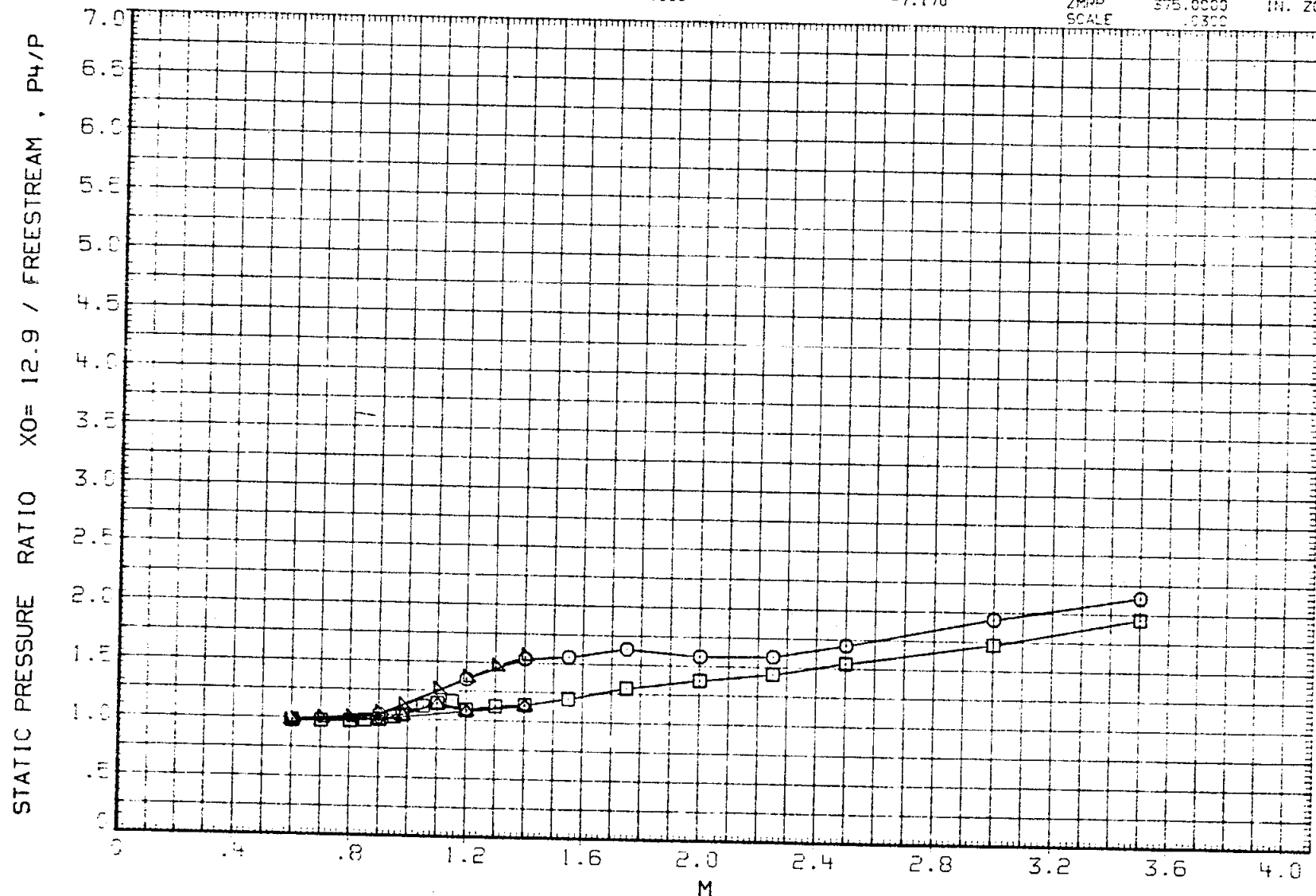


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(C) ALPHA = 12.00

## DATA SET SYMBOL

AE7B05  $\square$  ARC 11-97-87-094 0A161 ORBITER + RAKES  
 AE7B15  $\square$  ARC 11-97-87-094 0A161 ORBITER  
 AE7B20  $\square$  DATA NOT AVAILABLE  
 AE7B25  $\square$  DATA NOT AVAILABLE  
 AE7B31  $\square$  DATA NOT AVAILABLE  
 AE7B32  $\square$  DATA NOT AVAILABLE

## CONFIGURATION

BETA	ELEVON	AILRON	BOFLAP
.000	.000	.000	-7.170
.000	.000	.000	-7.170
.000	.000	2.500	-7.170
.000	.000	5.000	-7.170
.000			-7.170
.000			-7.170

## REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

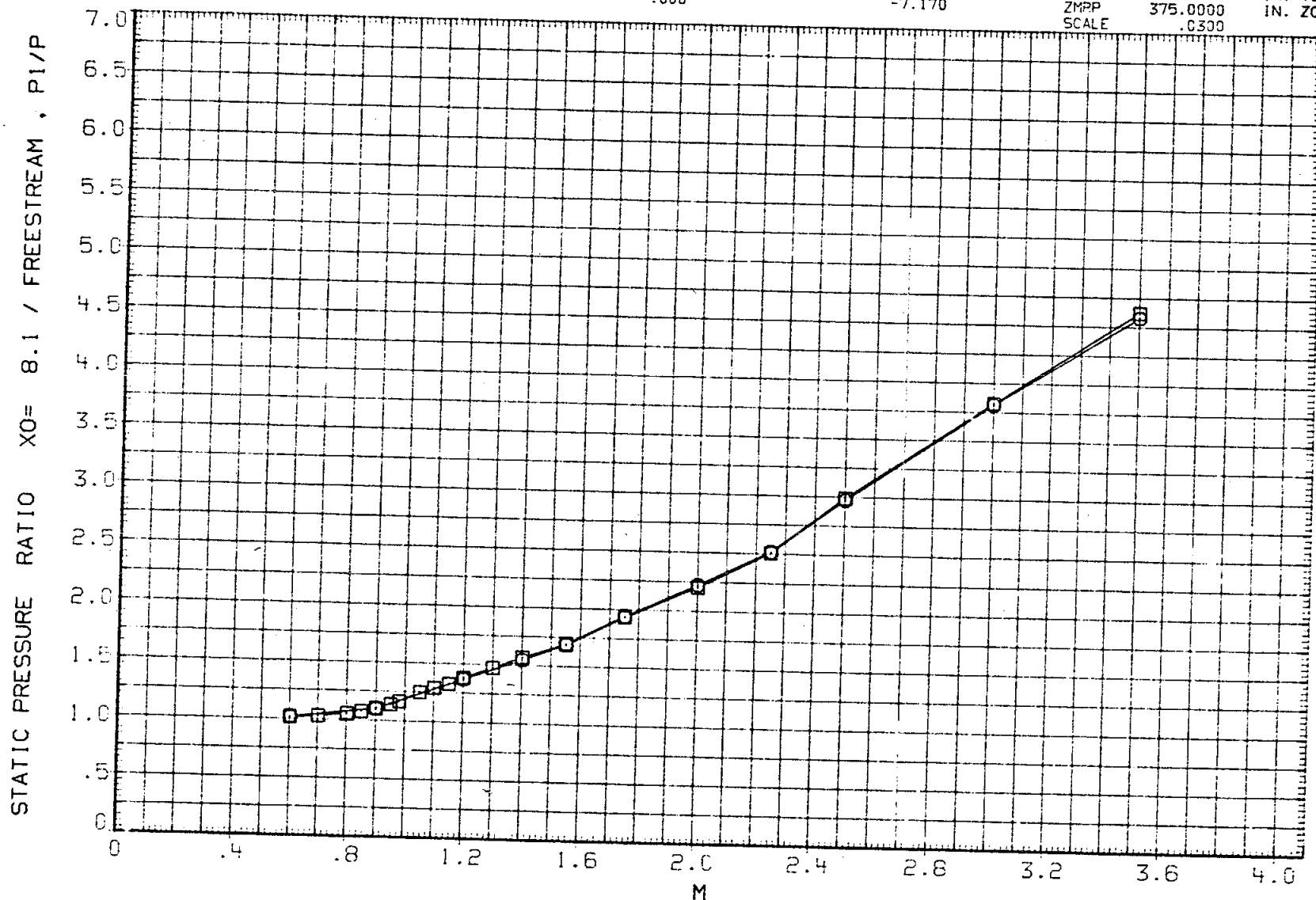


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(D) ALPHA = 18.00

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
AE0805	ARC 11-97-87-094 0A161 ORBITER + RAKES	.000	.000	.000	-7.170	SREF	2590.0000	50. FT.
AE0815	ARC 11-97-87-094 0A161 ORBITER	.000	.000	.000	-7.170	LREF	474.8000	IN.
AE0820	DATA NOT AVAILABLE	.000	.000	2.500	-7.170	BREF	936.6800	IN.
AE0825	DATA NOT AVAILABLE	.000	.000	5.000	-7.170	XMRP	1076.6800	IN. XO
AE0831	DATA NOT AVAILABLE	.000	.000		-7.170	YMRP	.0000	IN. YO
AE0832	DATA NOT AVAILABLE	.000			-7.170	ZMRP	375.0000	IN. ZO
						SCALE	.8330	

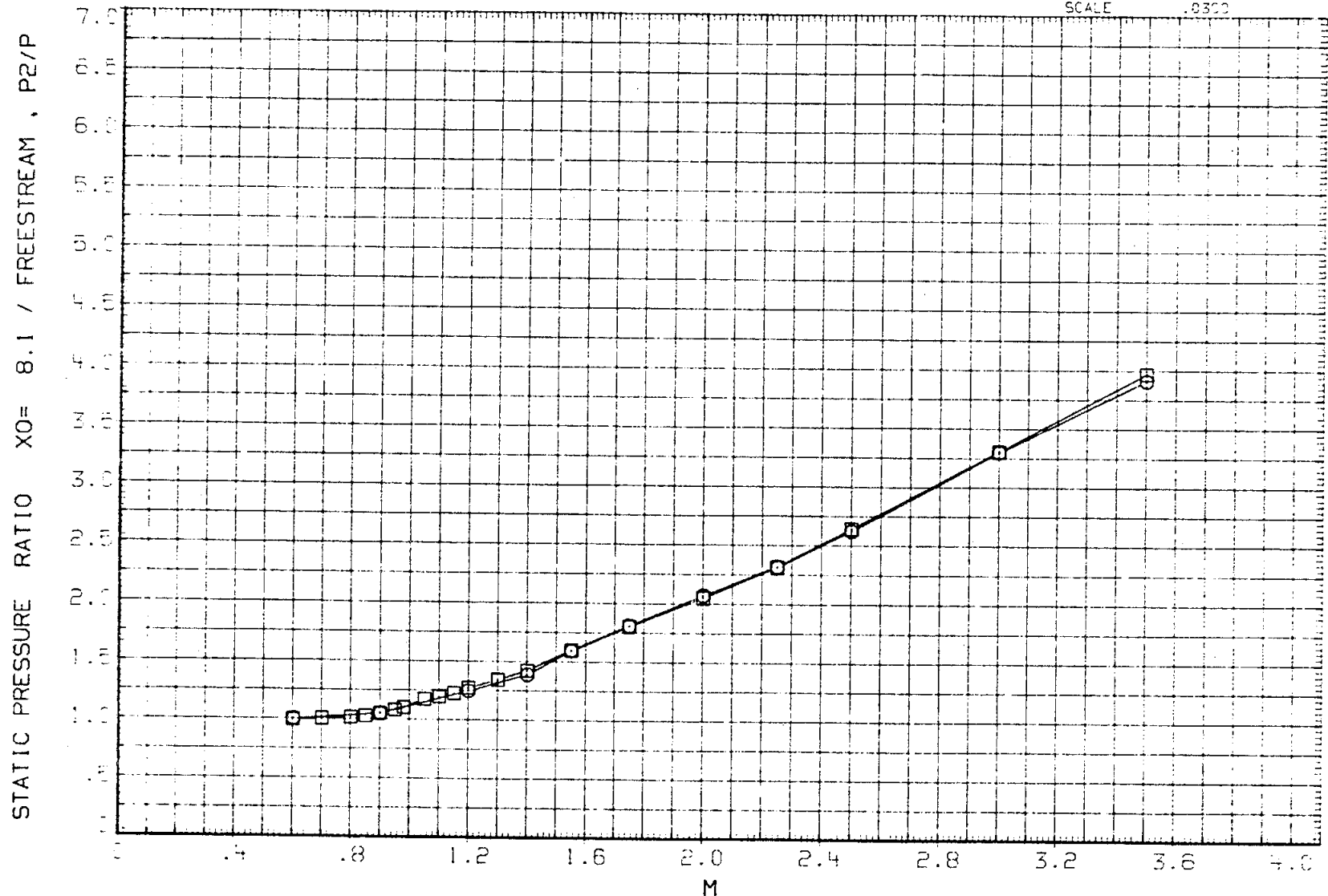


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(D) ALPHA = 18.00

DATA SET SYMBOL

AE7805	○	ARC 11-97-87-094 OA161 ORBITER + RAKES
AE7815	□	ARC 11-97-87-094 OA161 ORBITER
AE7820	◇	DATA NOT AVAILABLE
AE7825	△	DATA NOT AVAILABLE
AE7831	▽	DATA NOT AVAILABLE
AE7832	◻	DATA NOT AVAILABLE

CONFIGURATION

BETA	ELEVON	AILRON	BOFLAP
.000	.000	.000	-7.170
.000	.000	.000	-7.170
.000	.000	2.500	-7.170
.000	.000	5.000	-7.170
.000			-7.170
.000			-7.170

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	474.9000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

STATIC PRESSURE RATIO  $XO = 12.9 / \text{FREESTREAM} \cdot P3/P$

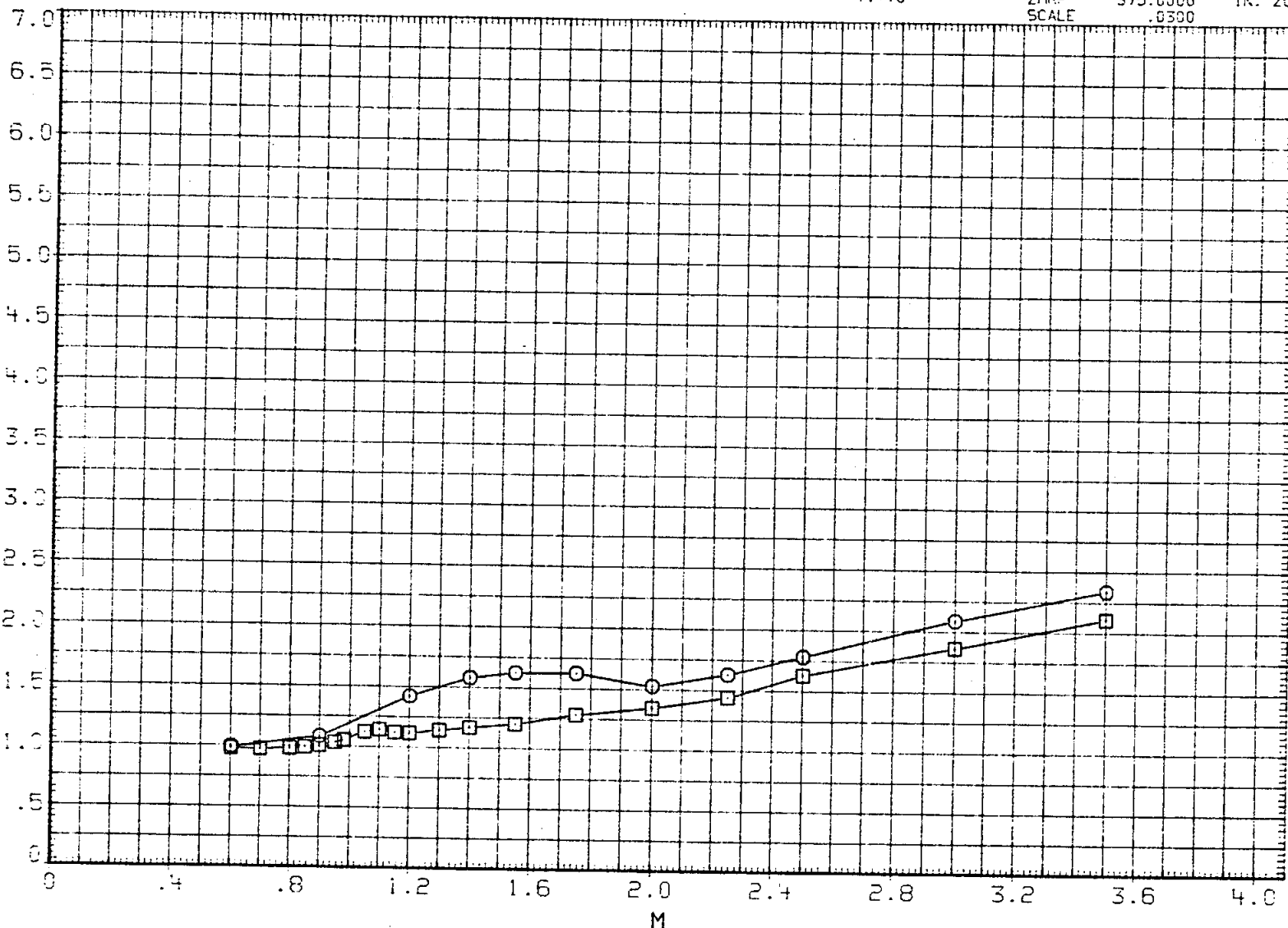


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(D) ALPHA = 18.00

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BOFLAP

REFERENCE INFORMATION

AE7B05 APC 11-97-87-094 0A161 ORBITER + RAKES  
 AE7B15 APC 11-97-87-094 0A161 ORBITER  
 AE7B20 DATA NOT AVAILABLE  
 AE7B25 DATA NOT AVAILABLE  
 AE7B01 DATA NOT AVAILABLE  
 AE7B02 DATA NOT AVAILABLE

BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION
.000	.000	.000	-7.170	SREF 2693.0000 SQ. FT.
.000	.000	.000	-7.170	LREF 474.2000 IN.
.000	.000	2.500	-7.170	BREF 936.6000 IN.
.000	.000	5.000	-7.170	XMPP 1075.6000 IN. XO
.000	.000		-7.170	YMPP .0000 IN. YO
.000	.000		-7.170	ZMPP 375.0000 IN. ZO
				SCALE .2500

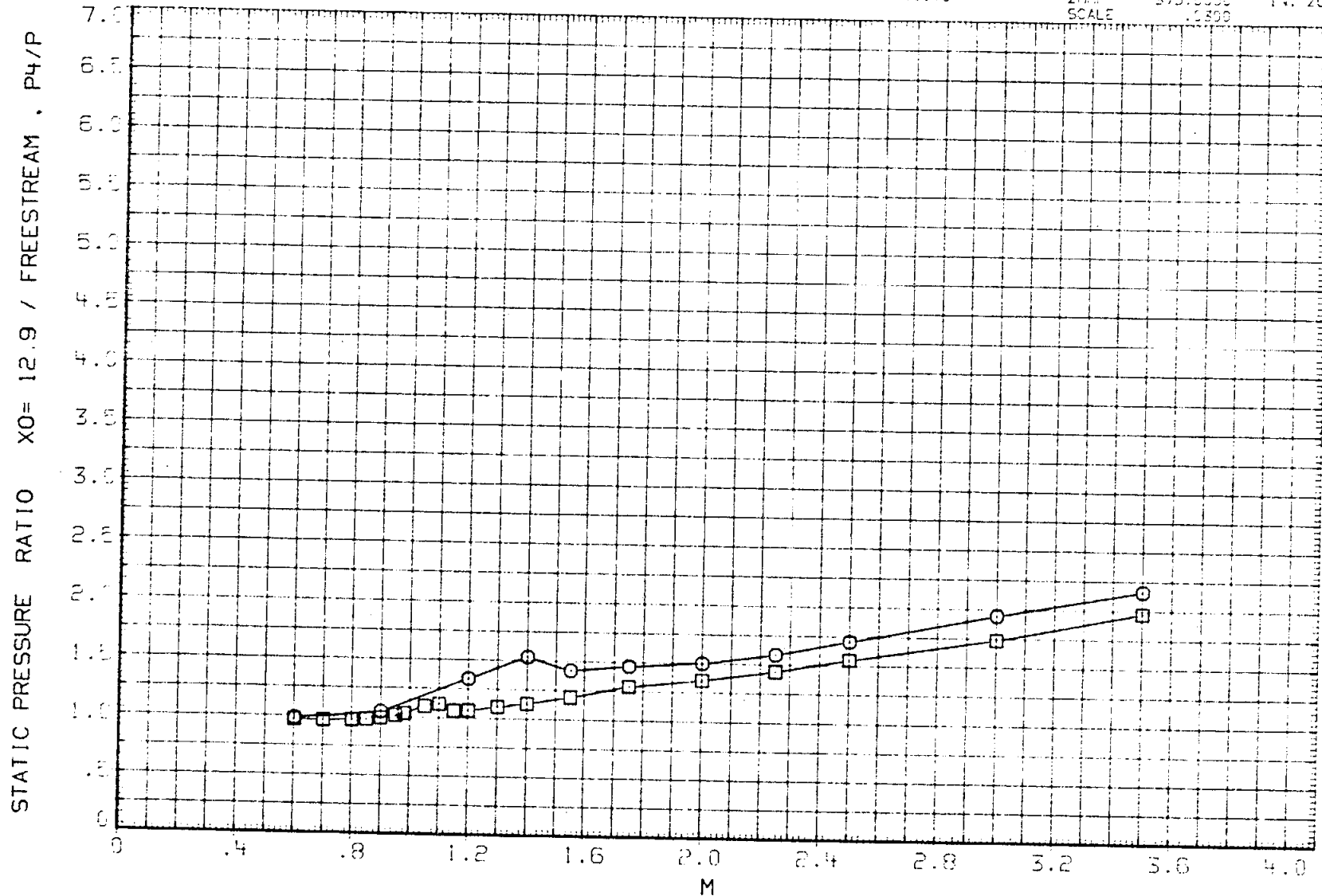


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(D) ALPHA = 18.00



DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
AE7805	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
AE7815	□	ARC 11-97-87-094 OA161 ORBITER	.000	.000	.000	-7.170	LREF	474.8000	IN.
AE7820	◇	DATA NOT AVAILABLE	.000	.000	2.500	-7.170	BREF	935.6800	IN.
AE7825	△	DATA NOT AVAILABLE	.000	.000	5.000	-7.170	XMRP	1076.6800	IN. XO
AE7801	△	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000	.000		-7.170	YMRP	.0000	IN. YO
AE7802	□	ARC 11-97-87-094 OA161 ORBITER - WING	.000			-7.170	ZMRP	375.0000	IN. ZO
							SCALE	.0300	

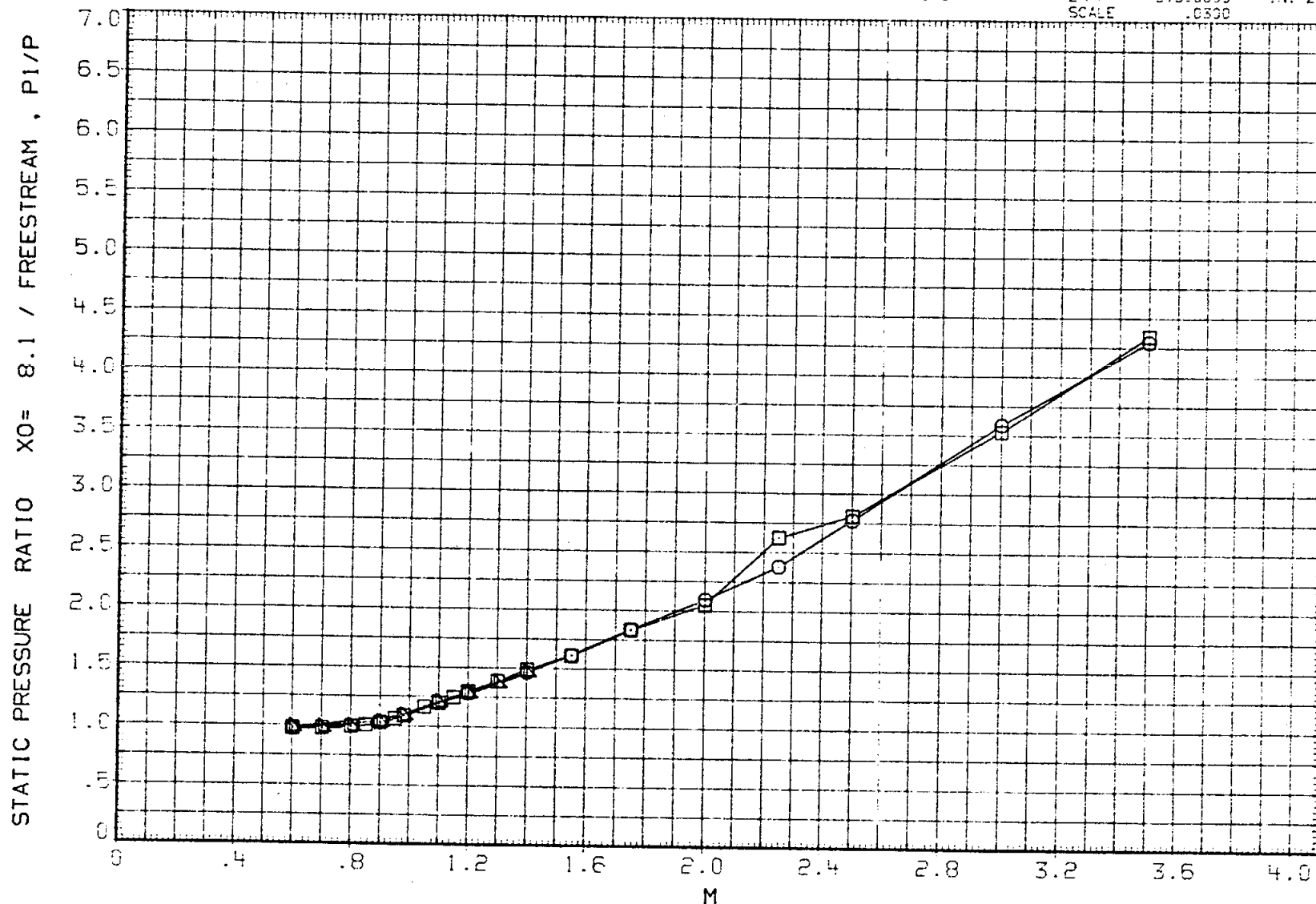


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(E) ALPHA = 24.00

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BDCLAP

REFERENCE INFORMATION

AETB05 ○ ARC 11-97-87-094 OA161 ORBITER + RAKES  
 AETB15 □ ARC 11-97-87-094 OA161 ORBITER  
 AETB20 ◇ DATA NOT AVAILABLE  
 AETB25 △ DATA NOT AVAILABLE  
 AETB31 ▲ ARC 11-97-87-094 OA161 ORBITER - WING + RAKES  
 AETB32 ▤ ARC 11-97-87-094 OA161 ORBITER - WING

.000

.000

.000

-7.170

SREF

2695.0000

SQ. FT.

.000

.000

.000

-7.170

LREF

474.8000

IN.

.000

.000

2.500

-7.170

BREF

936.6000

IN.

.000

.000

5.000

-7.170

XMRP

1076.6800

IN. X0

.000

.000

-7.170

YMRP

.0000

IN. Y0

.000

-7.170

ZMRP

375.0000

IN. Z0

SCALE

.0300

STATIC PRESSURE RATIO X0= 8.1 / FREESTREAM, P2/P

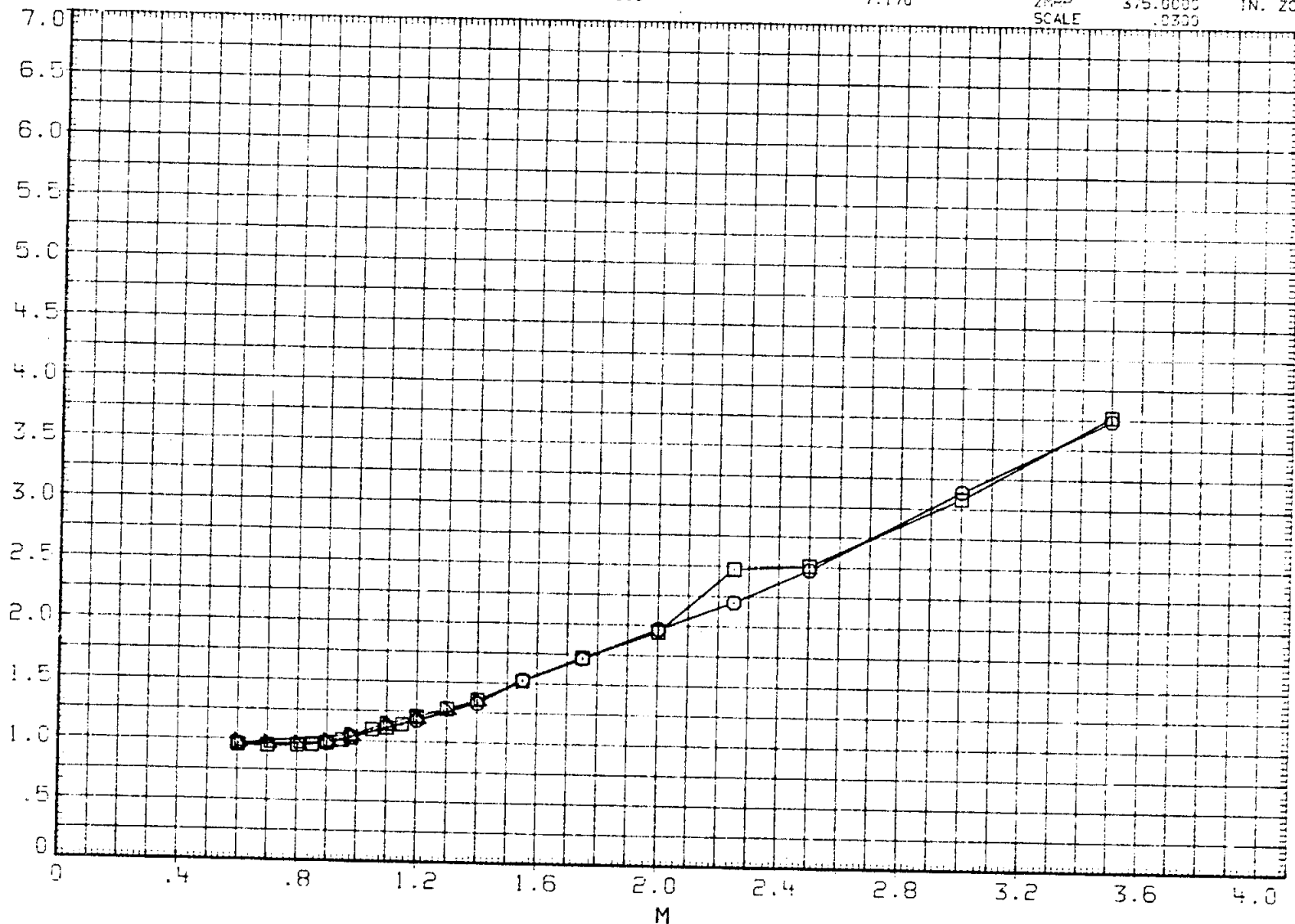


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(E) ALPHA = 24.00

# DATA SET SYMBOL

DATA SET SYMBOL	CONFIGURATION
AE7805	ARC 11-97-87-094 OA161 ORBITER + RAKES
AE7815	ARC 11-97-87-094 OA161 ORBITER
AE7820	DATA NOT AVAILABLE
AE7825	DATA NOT AVAILABLE
AE7801	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES
AE7832	ARC 11-97-87-094 OA161 ORBITER - WING

BETA	ELEVON	AILRON	DOFLAP
.000	.000	.000	-7.170
.000	.000	.000	-7.170
.000	.000	2.500	-7.170
.000	.000	5.000	-7.170
.000	.000		-7.170
.000	.000		-7.170

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

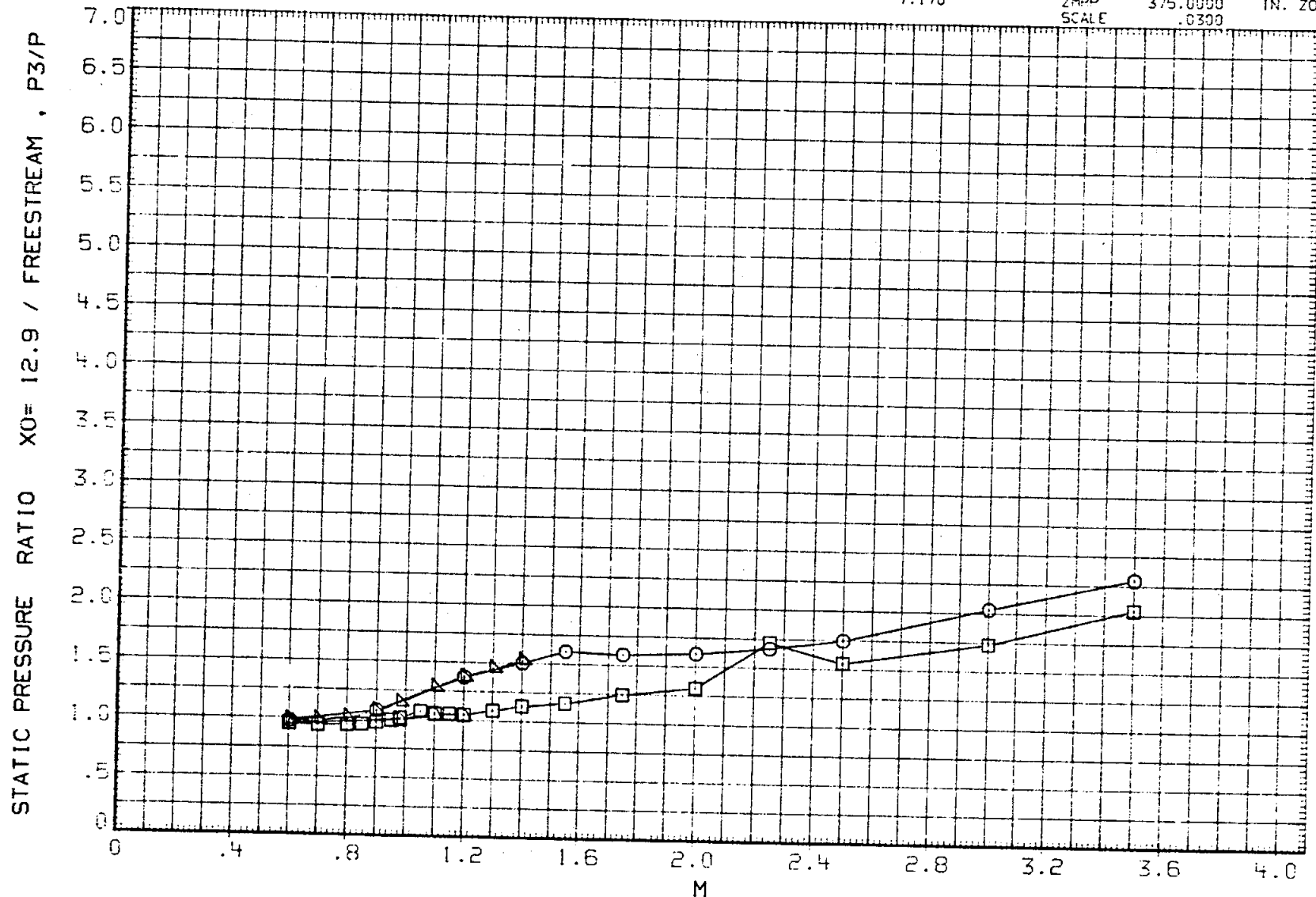


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(E) ALPHA = 24.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOPLAP	REFERENCE INFORMATION		
AE7805	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	.000	.000	.000	-7.170	SREF	2690.0000	50. F°
AE7815	□	ARC 11-97-87-094 OA161 ORBITER	.000	.000	.000	-7.170	LPREF	434.8000	IN.
AE7820	◇	DATA NOT AVAILABLE	.000	.000	2.500	-7.170	BPREF	936.6800	IN.
AE7825	△	DATA NOT AVAILABLE	.000	.000	5.000	-7.170	YMPP	1076.6800	IN. XO
AE7831	▽	ARC 11-97-87-094 OA161 ORBITER - WING + RAKES	.000	.000		-7.170	YMPP	.0000	IN. YO
AE7802	◻	ARC 11-97-87-094 OA161 ORBITER - WING	.000			-7.170	ZMPP	375.0000	IN. ZO
							SCALE	.03500	

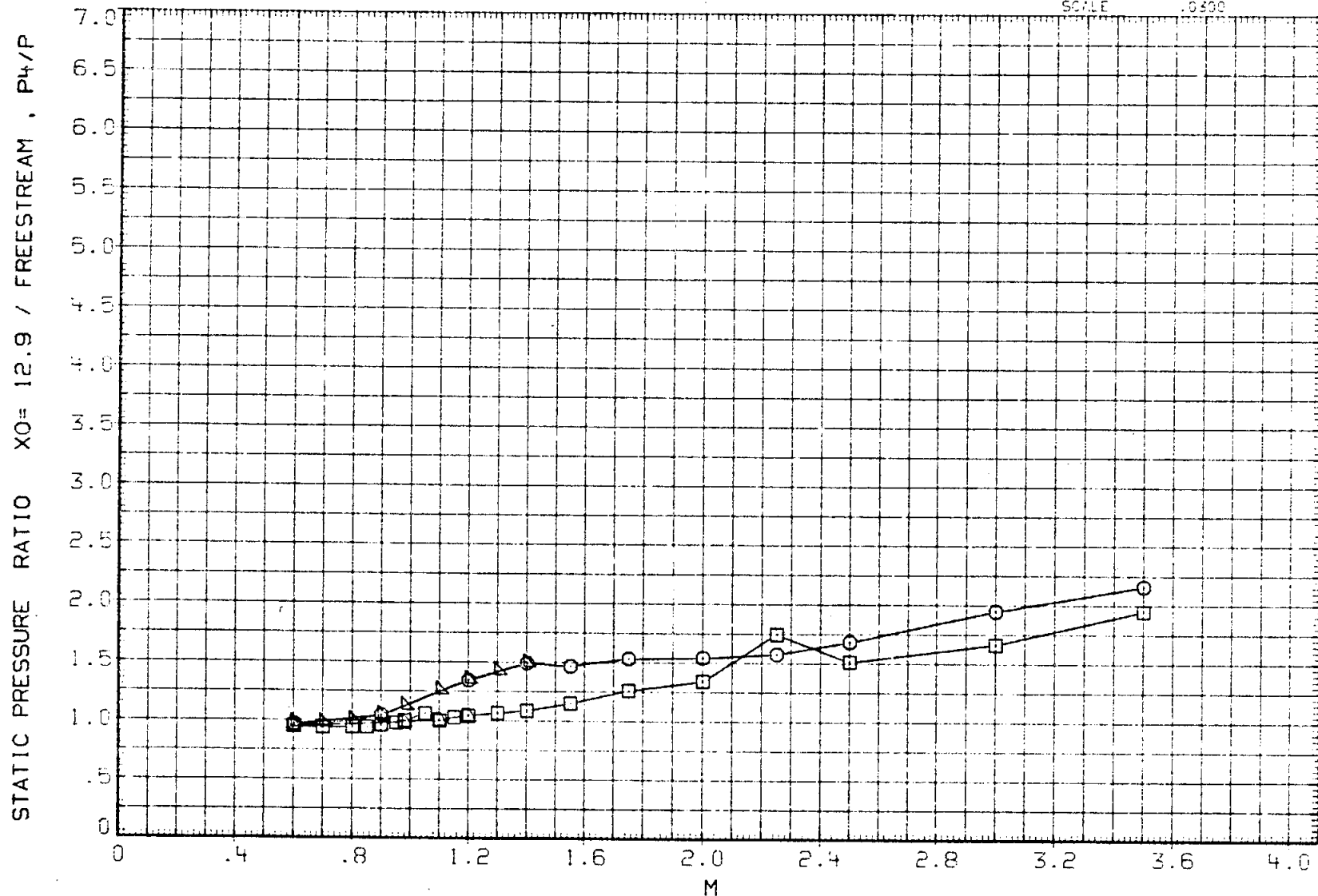


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(E) ALPHA = 24.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
AE7807	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	SREF	2690.0000	50. FT.
AE7817	□	ARC 11-97-87-094 0A161 ORBITER	5.000	.000	.000	-7.170	LREF	474.8000	IN.
AE7822	◇	ARC 11-97-87-094 0A161 ORBITER	5.000	.000	2.500	-7.170	BREF	936.6800	IN.
AE7827	△	ARC 11-97-87-094 0A161 ORBITER	5.000	.000	5.000	-7.170	XMRF	1076.5800	IN. XO
							YMRF	.0000	IN. YO
							ZMRF	375.0000	IN. ZO
							SCALE	.0300	

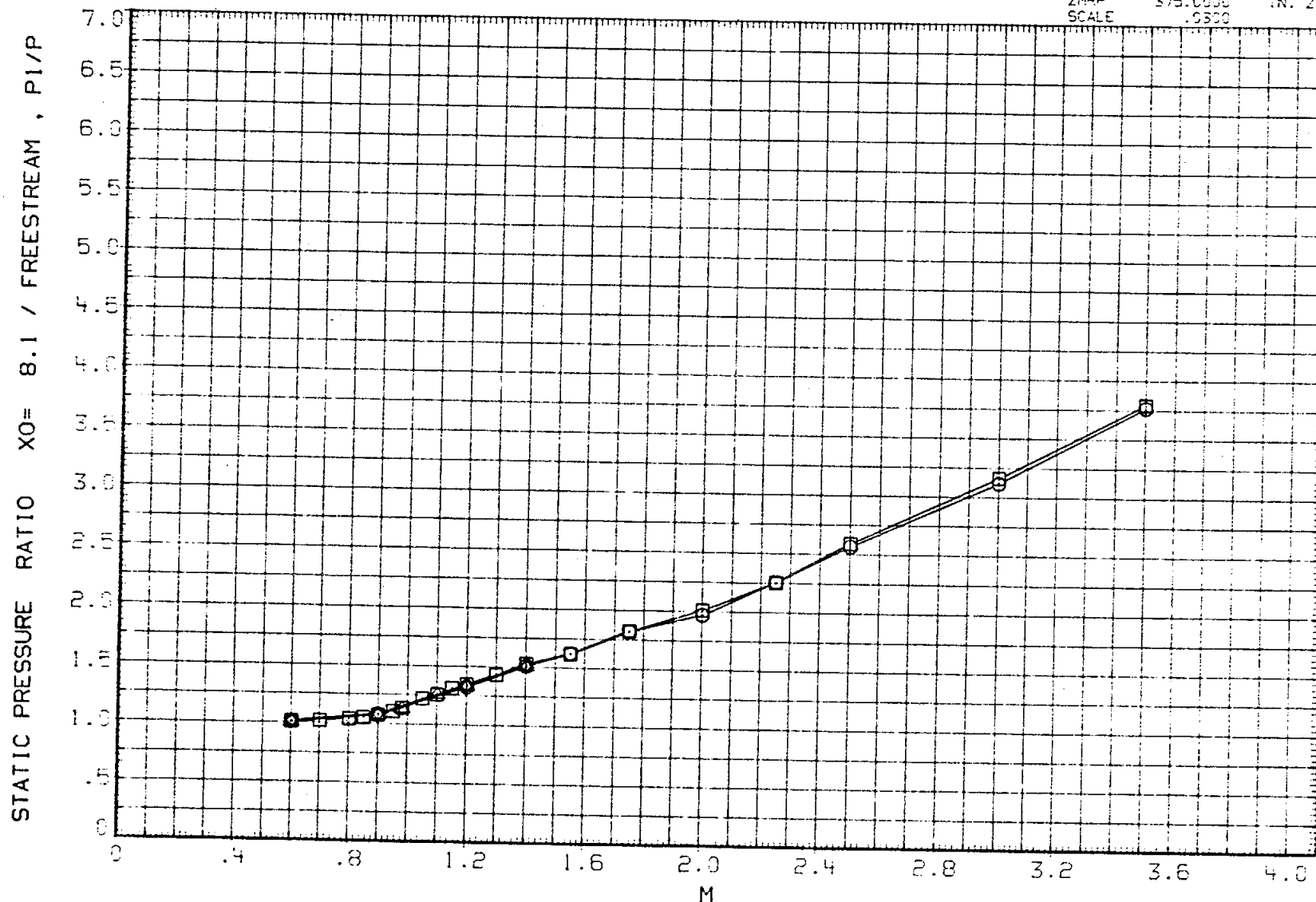


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(A) ALPHA = .00

## DATA SET SYMBOL

## CONFIGURATION

BETA

ELEVON

AILRON

BCFLAP

## REFERENCE INFORMATION

AE7807    ○    ARC 11-97-87-094 0A161 ORBITER + RAKES  
 AE7817    □    ARC 11-97-87-094 0A161 ORBITER  
 AE7822    ◇    ARC 11-97-87-094 0A161 ORBITER  
 AE7827    △    ARC 11-97-87-094 0A161 ORBITER

5.000

.000

.000

-7.170

SREF 2690.0000 SQ. FT.

5.000

.000

.000

-7.170

LREF 474.8000 IN.

5.000

.000

2.500

-7.170

SREF 936.6800 IN.

5.000

.000

5.000

-7.170

XMRP 1076.6800 IN. X0

YMRP .0000 IN. Y0

ZMRP 375.0000 IN. Z0

SCALE .6300

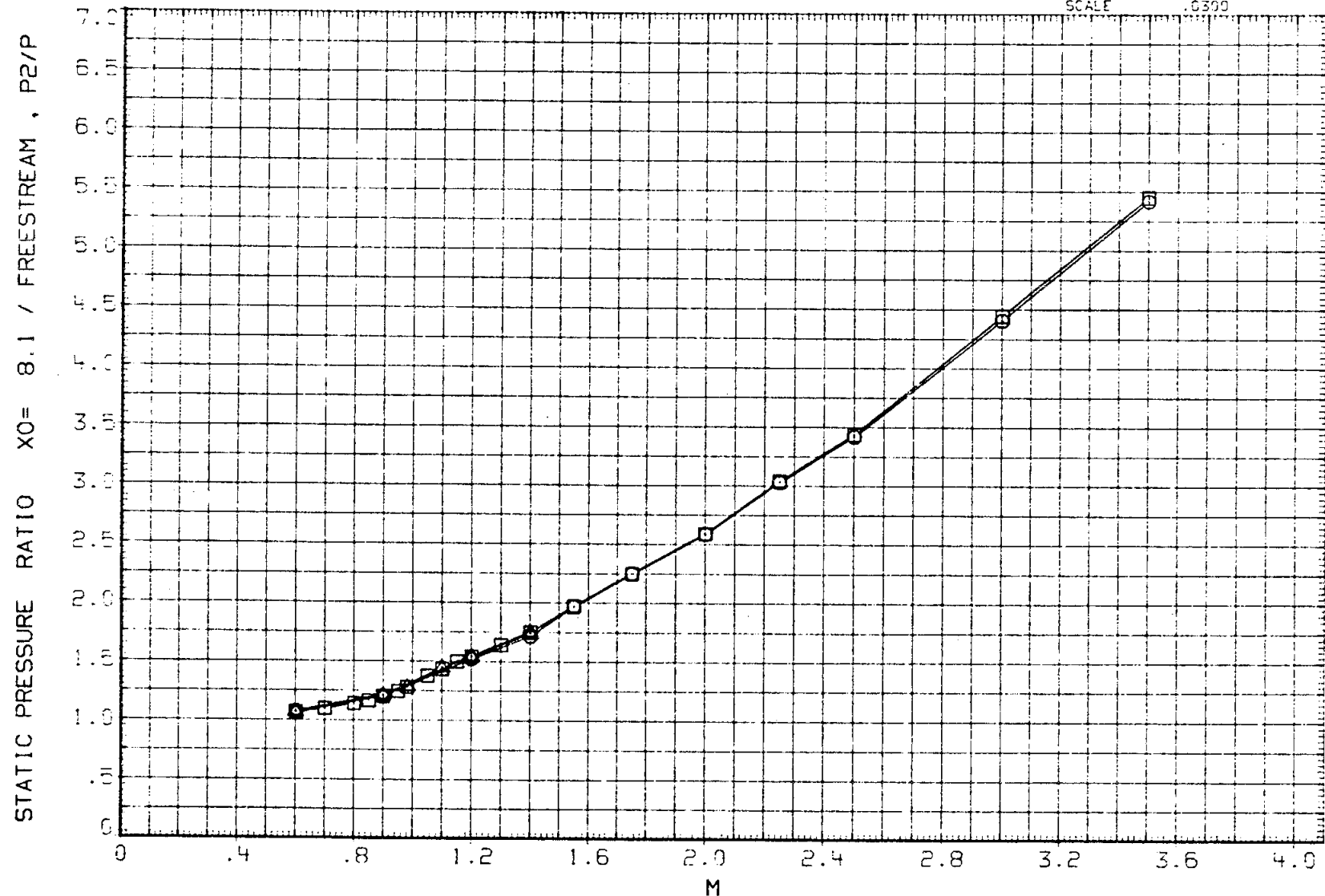


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(A) ALPHA = .00

DATA SET SYMBOL

AE7B07 ○ ARC 11-97-87-09+ 04161 ORBITER + RAKES  
 AE7B17 □ ARC 11-97-87-09+ 04161 ORBITER  
 AE7B22 ◇ ARC 11-97-87-09+ 04161 ORBITER  
 AE7B27 △ ARC 11-97-87-09+ 04161 ORBITER

CONFIGURATION

BETA	ELEVON	AILRON	BDFLAP
5.000	.000	.000	-7.170
5.000	.000	.000	-7.170
5.000	.000	2.500	-7.170
5.000	.000	5.000	-7.170

REFERENCE INFORMATION

SREF	2690.0000	50. FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
XMPP	1076.6800	IN. XO
YMP	.0000	IN. YO
ZMP	375.0000	IN. ZO
SCALE	.0300	

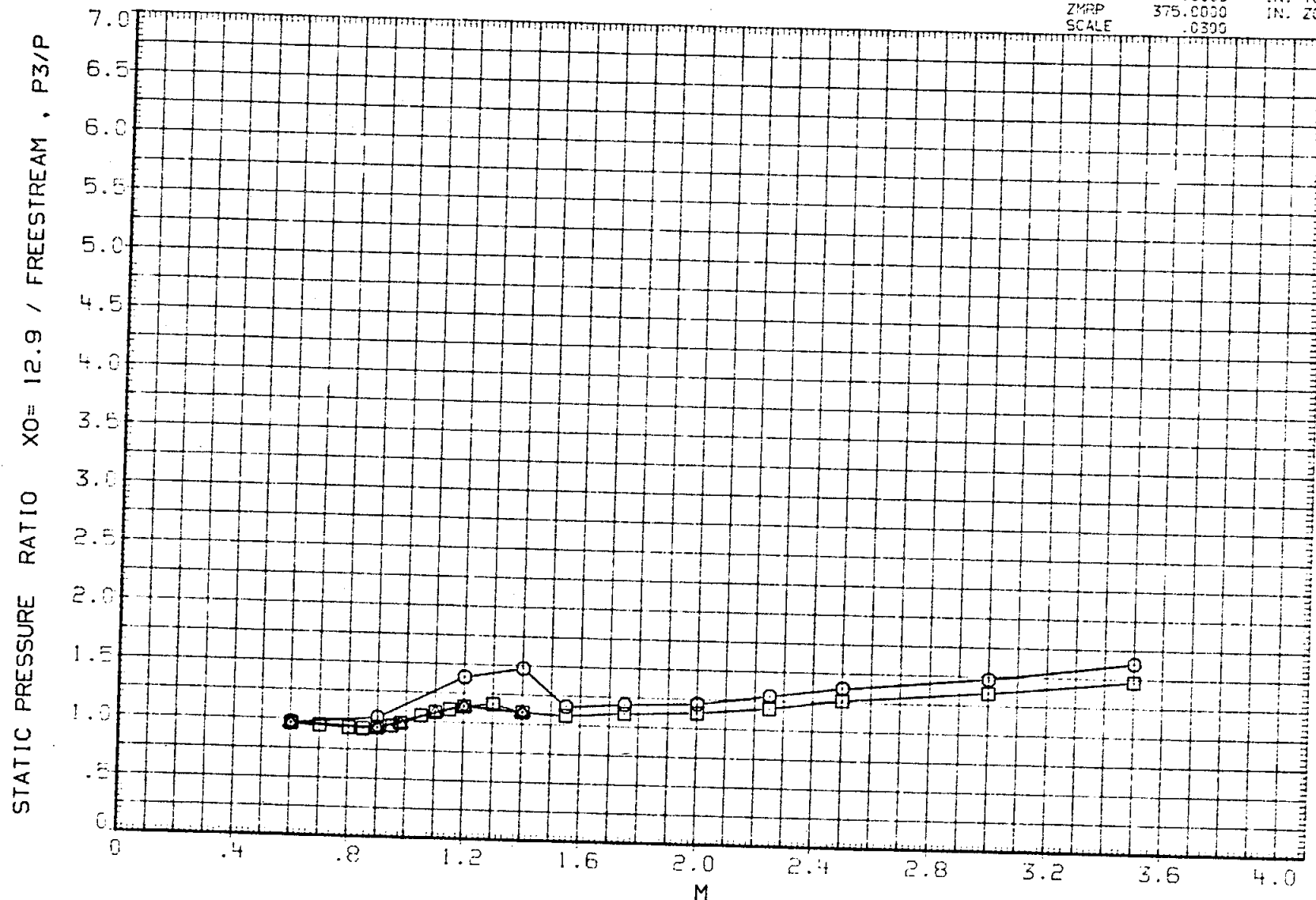


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(A) ALPHA = .00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
AET807	○	ARC 11-97-87-004 0A161 ORBITER - BAKES	5.000	.000	.000	-7.170	SREF	2680.0000	SQ.FT.
AET817	□	ARC 11-97-87-094 0A161 ORBITER	5.000	.000	.000	-7.170	LREF	474.8000	IN.
AET822	◇	ARC 11-97-87-094 0A161 ORBITER	5.000	.000	2.500	-7.170	BREF	935.6800	IN.
AET827	△	ARC 11-97-87-094 0A161 ORBITER	5.000	.000	5.000	-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

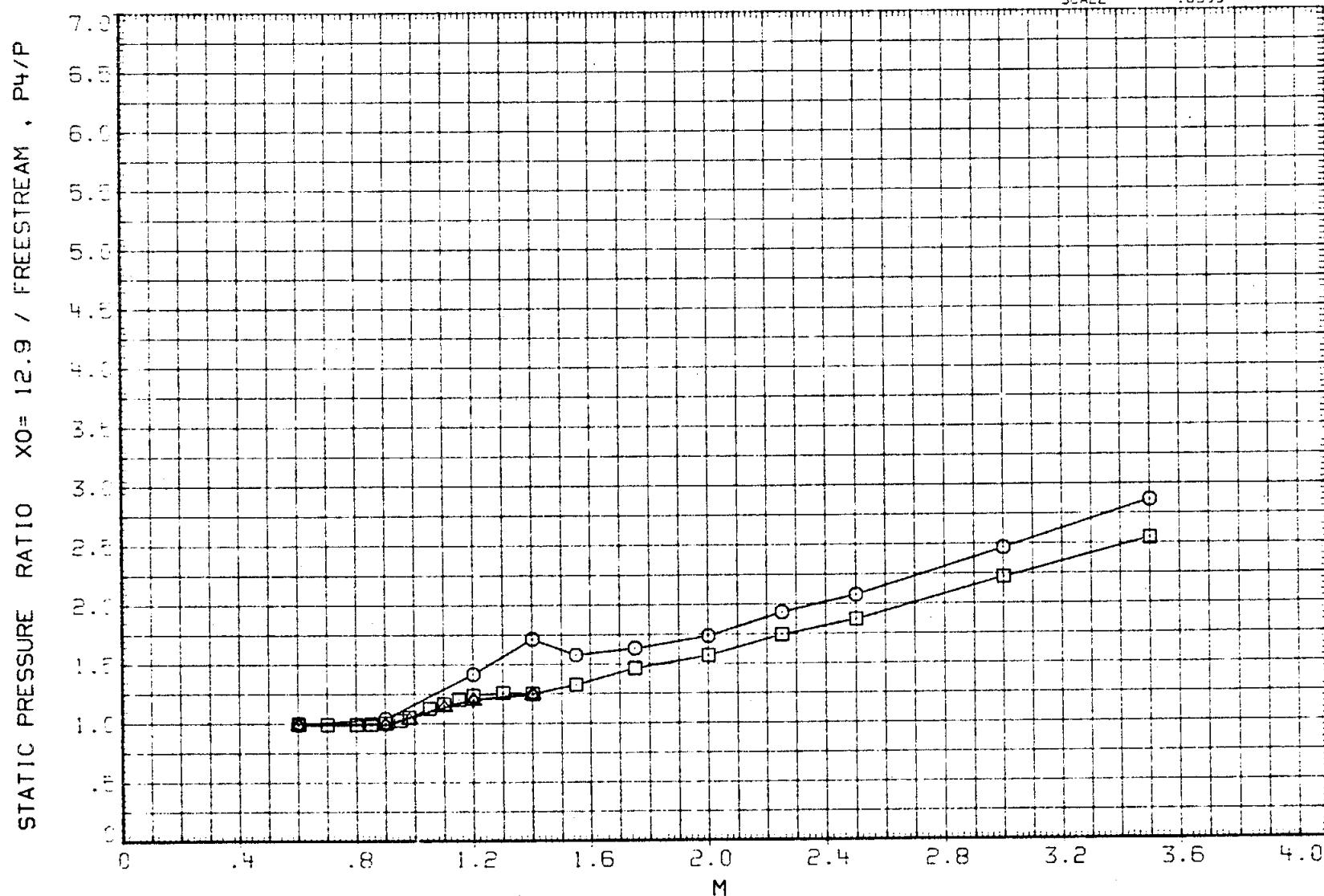


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(A) ALPHA = .00



# DATA SET SYMBOL

AE7B07 ○ ARC 11-97-87-094 OA161 ORBITER + RAKES  
 AE7B17 □ ARC 11-97-87-094 OA161 ORBITER  
 AE7B22 ◇ DATA NOT AVAILABLE  
 AE7B27 △ DATA NOT AVAILABLE

## CONFIGURATION

BETA	ELEVON	AILRON	BDFLAP
5.000	.000	.000	-7.170
5.000	.000	.000	-7.170
5.000	.000	2.500	-7.170
5.000	.000	5.000	-7.170

## REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

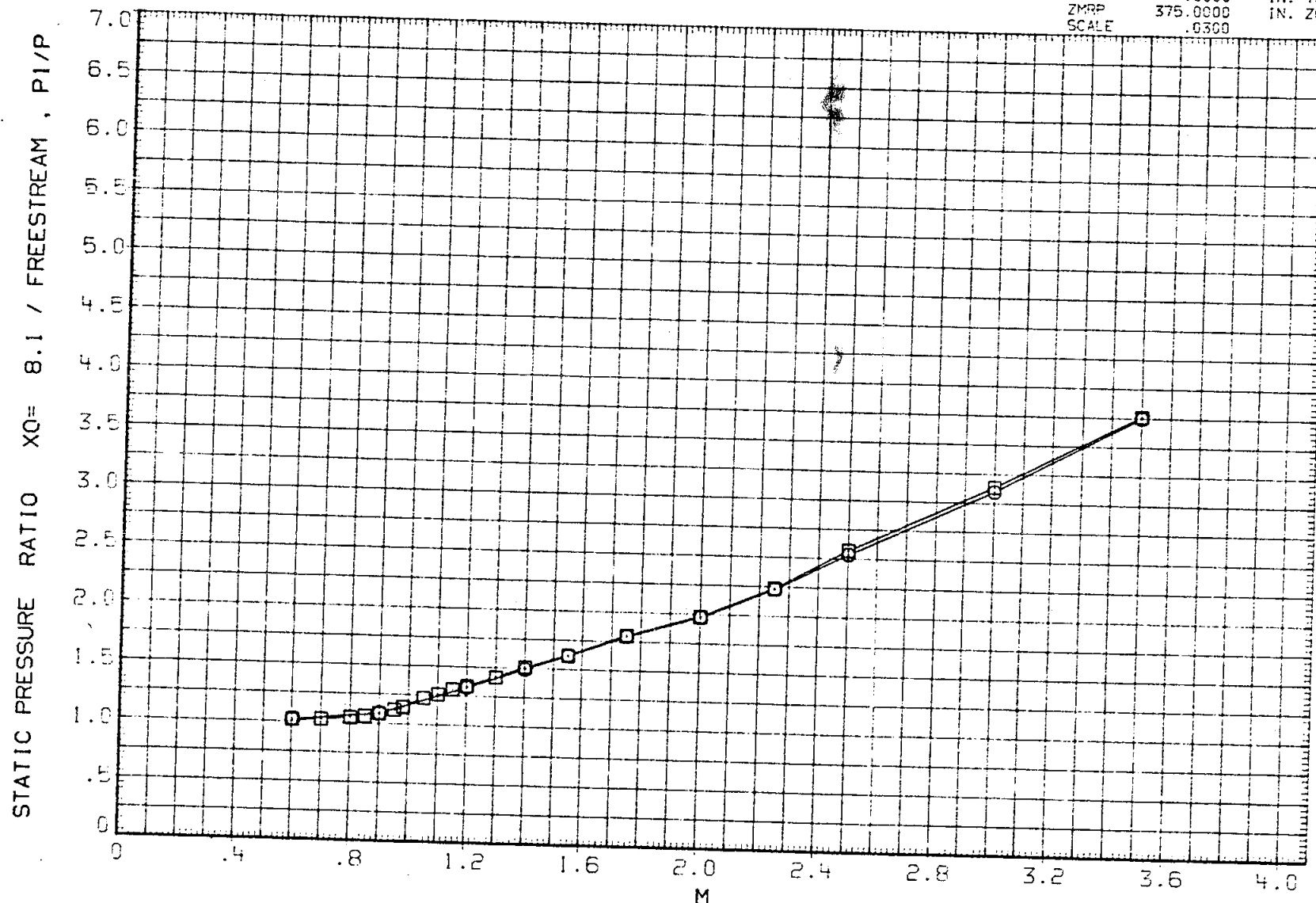


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(B) ALPHA = 6.00

## DATA SET SYMBOL

## CONFIGURATION

## BETA

## ELEVON

## AILRON

## BDFLAP

## REFERENCE INFORMATION

AETB07 O ARC 1-97-87-094 CA161 ORBITER + RAKES  
 AETB07 U ARC 1-97-87-094 CA161 ORBITER  
 AETB07 C DATA NOT AVAILABLE  
 AETB07 Δ DATA NOT AVAILABLE

5.000 .000 .000 -7.170  
 5.000 .000 .000 -7.170  
 5.000 .000 2.500 -7.170  
 5.000 .000 5.000 -7.170

SREF 2690.0000 SQ. FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE .0300

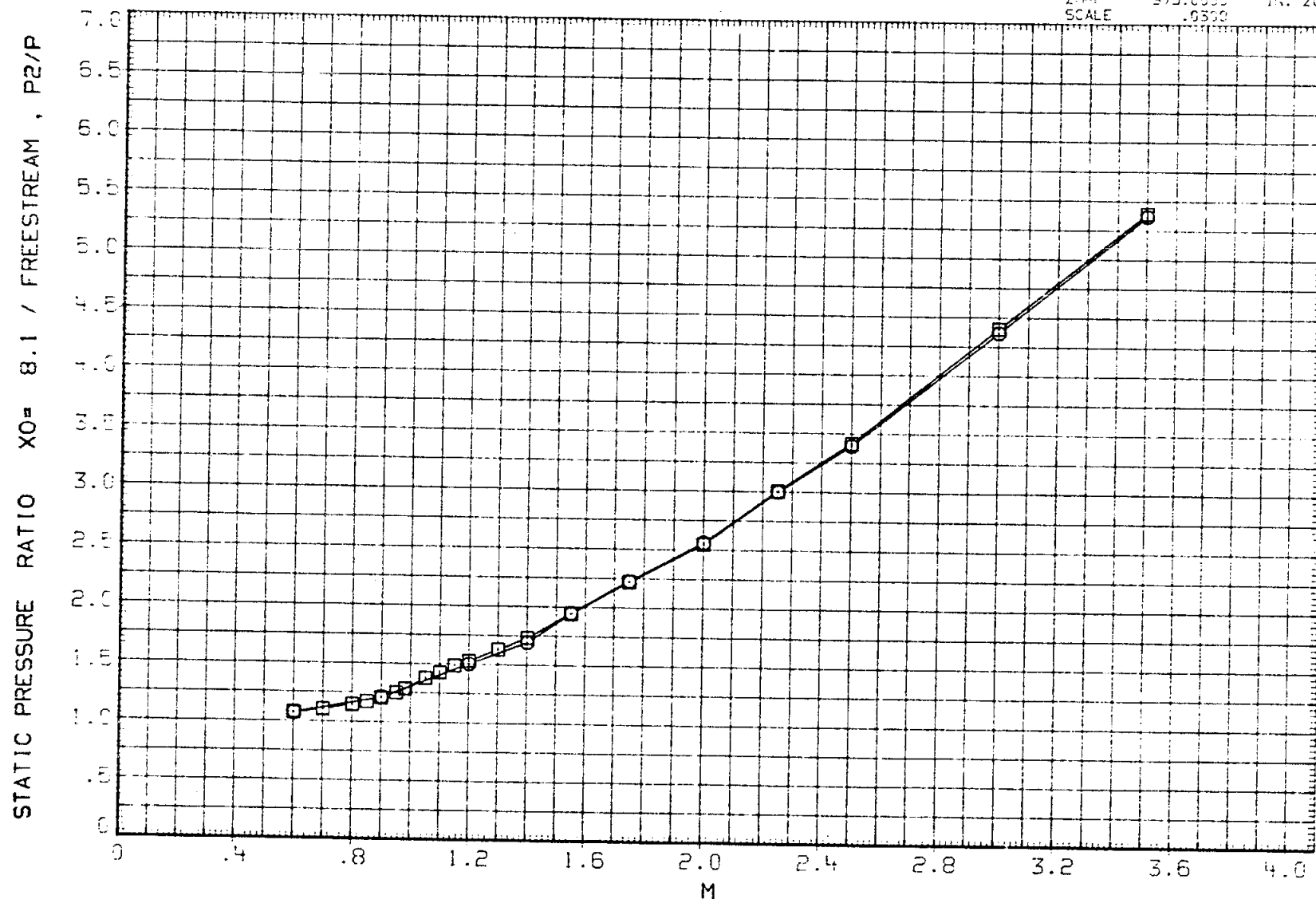


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(B) ALPHA = 6.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
AE7B07	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	SREF	2690.0000	50.FT.
AE7B17	□	ARC 11-97-87-094 OA161 ORBITER	5.000	.000	.000	-7.170	LREF	474.8000	IN.
AE7B22	◇	DATA NOT AVAILABLE	5.000	.000	2.500	-7.170	BREF	936.6800	IN.
AE7B27	△	DATA NOT AVAILABLE	5.000	.000	5.000	-7.170	XMPP	1076.6800	IN. XO
							YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0300	

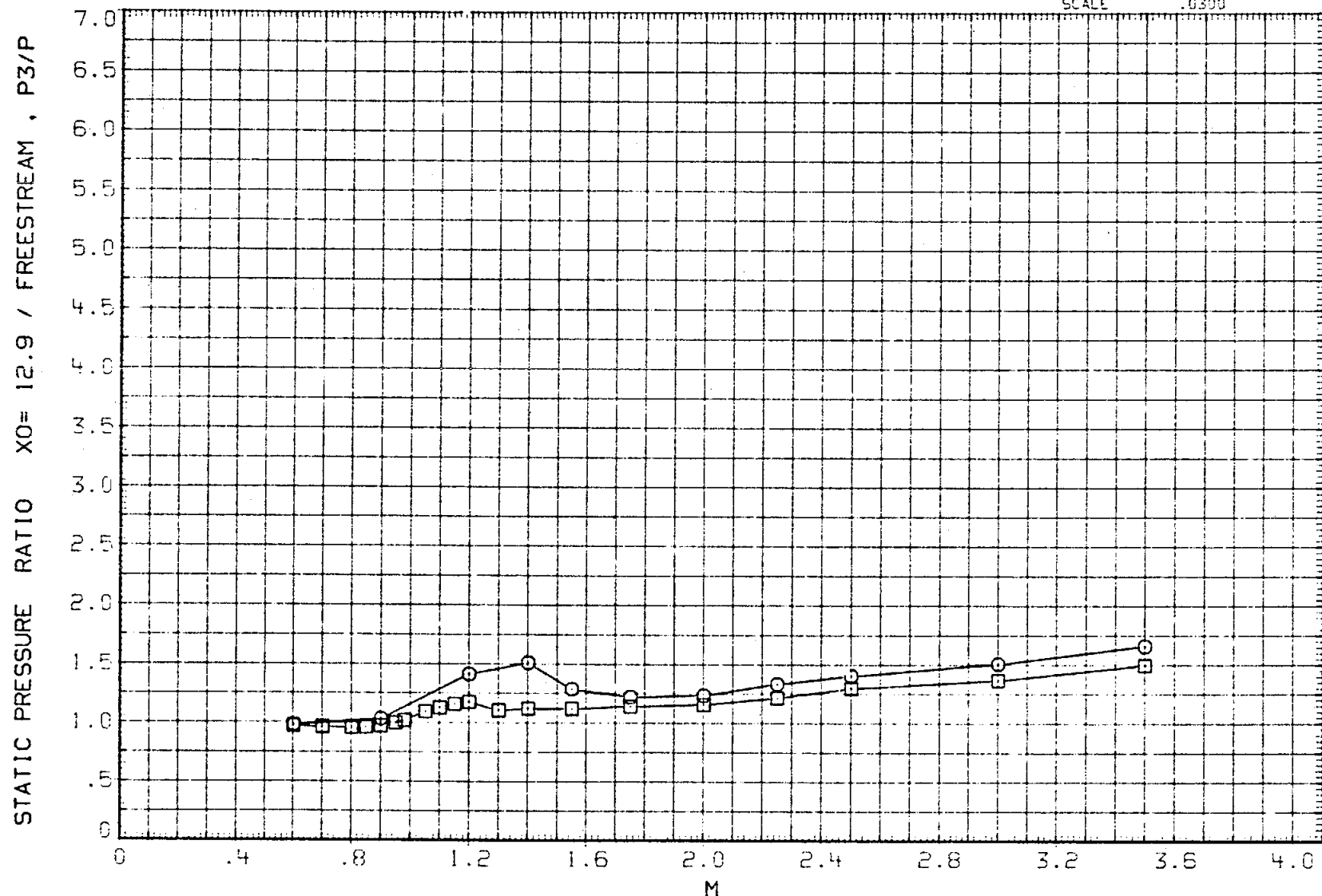


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(B) ALPHA = 6.00

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BDCLAP

REFERENCE INFORMATION

AET807 ○ ARC 11-97-87-094 0A161 ORBITER + RAKES  
 AET817 □ ARC 11-97-87-094 0A161 ORBITER  
 AET822 ◇ DATA NOT AVAILABLE  
 AET827 △ DATA NOT AVAILABLE

5.000 .000 .000 -7.170  
 5.000 .000 .000 -7.170  
 5.000 .000 2.500 -7.170  
 5.000 .000 5.000 -7.170

SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 DREF 936.6000 IN.  
 XMPP 1076.6800 IN. XO  
 YMPP .0000 IN. YO  
 ZMPP 375.0000 IN. ZO  
 SCALE .0300

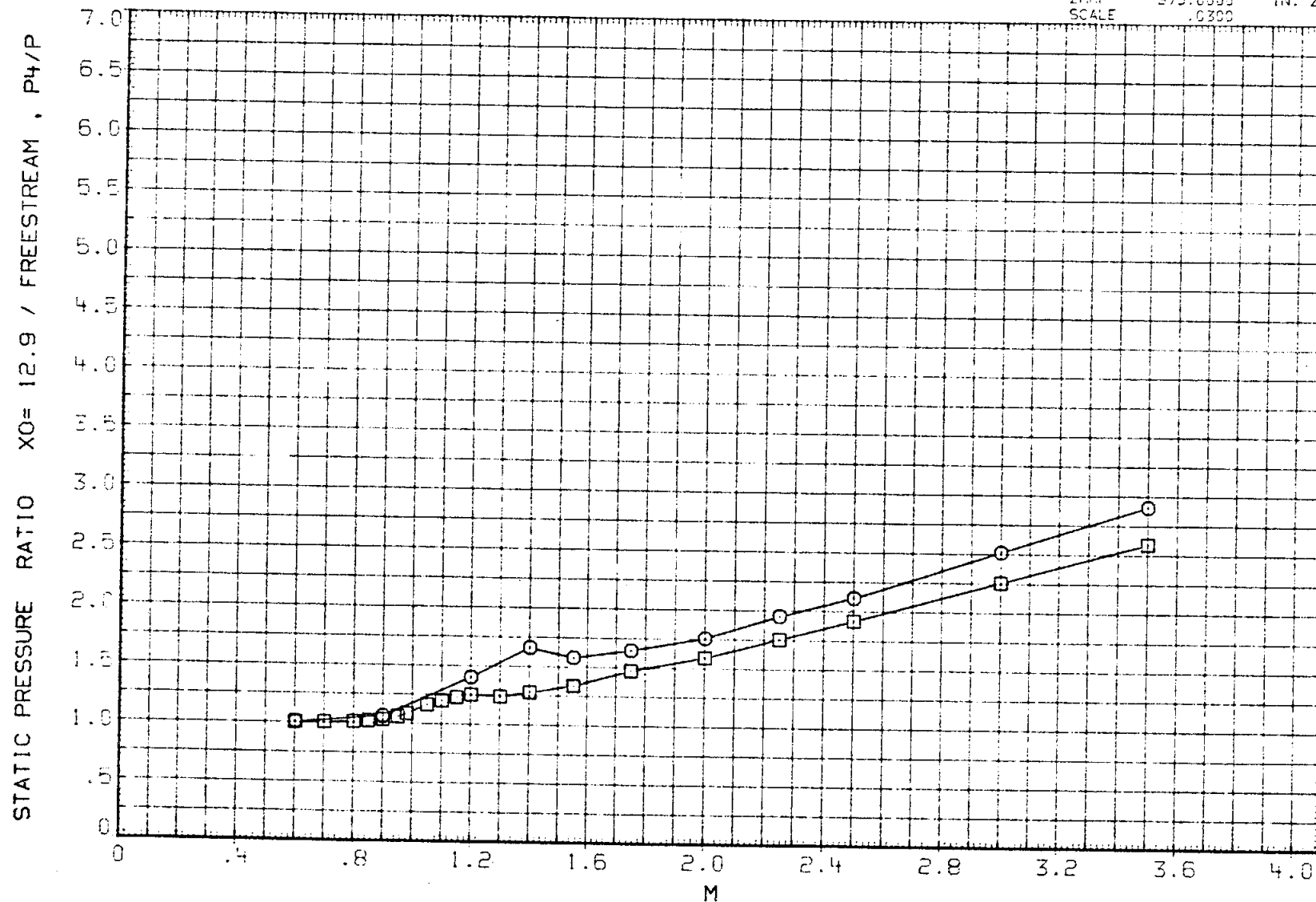


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(B) ALPHA = 6.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
AE7B07	○	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	SREF	2693.0000	SQ.FT.
AE7B17	□	ARC 11-97-87-094 OA161 ORBITER	5.000	.000	.000	-7.170	LREF	474.8000	IN.
AE7B22	◇	ARC 11-97-87-094 OA161 ORBITER	5.000	.000	2.500	-7.170	BREF	935.6800	IN.
AE7B27	△	ARC 11-97-87-094 OA161 ORBITER	5.000	.000	5.000	-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.9300	

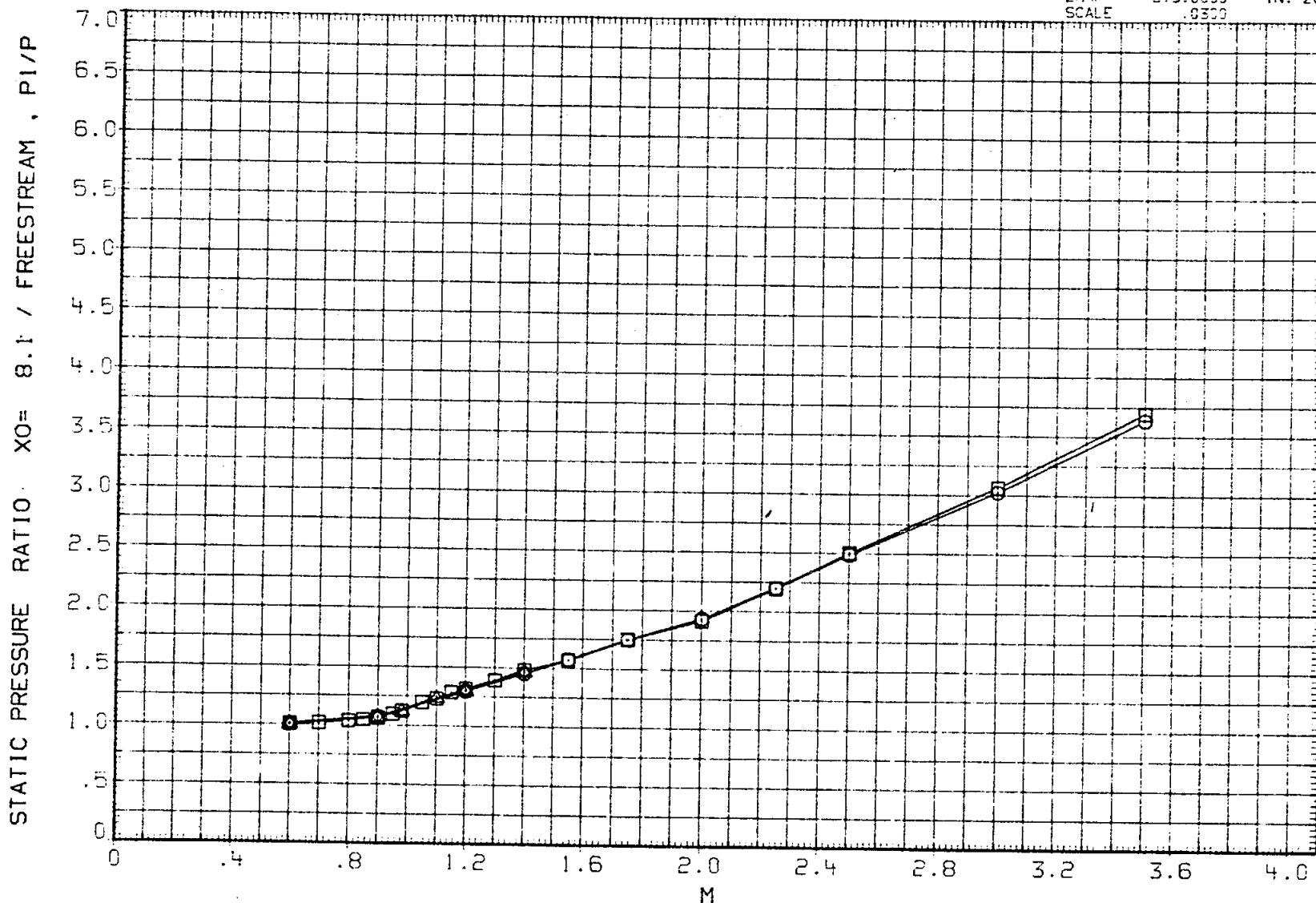


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(C) ALPHA = 12.00

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BIVTAP

REFERENCE INFORMATION

AE7807 ○ ARC 11-97-87-094 OA161 ORBITER + RAKES  
 AE7817 □ ARC 11-97-87-094 OA161 ORBITER  
 AE7822 ◇ ARC 11-97-87-094 OA161 ORBITER  
 AE7827 △ ARC 11-97-87-094 OA161 ORBITER

5.000

.000

.000

-7.170

SPREF 2690.0000 SQ. FT.

LPREF 474.8000 IN.

BREF 936.6000 IN.

XMRP 1076.6000 IN. XO

YMRP .0000 IN. YO

ZMRP 375.0000 IN. ZO

SCALE .0000

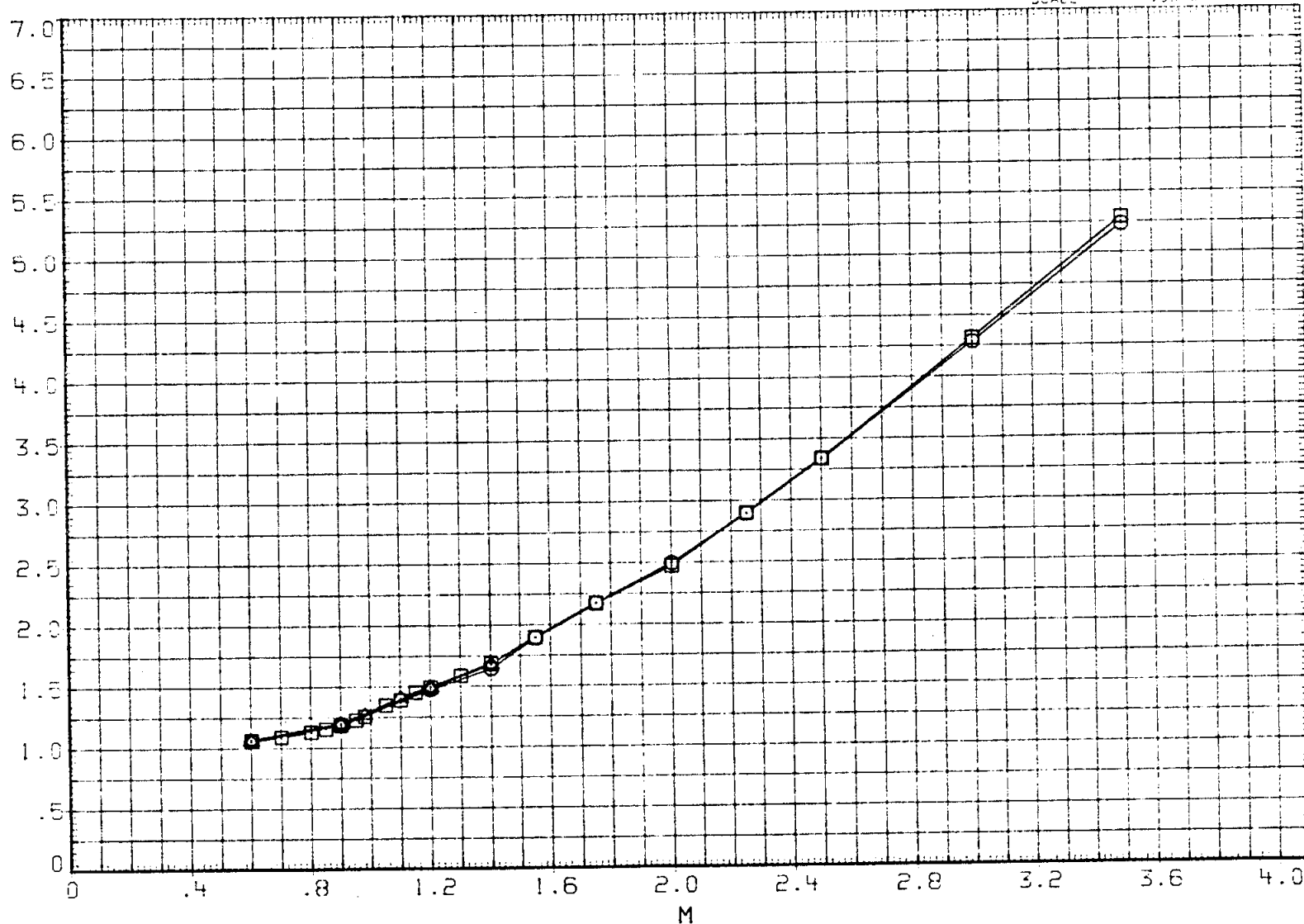
STATIC PRESSURE RATIO  $X_0 = 8.1$  / FREESTREAM  $P_2/P$ 

FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(C) ALPHA = 12.00

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DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION	
AE7B07	ARC 11-97-87-094 OA161 ORBITER + RAKES	5.000	.000	.000	-7.170	SREF	2690.0000 SQ.FT.
AE7B17	ARC 11-97-87-094 OA161 ORBITER	5.000	.000	.000	-7.170	LREF	474.8000 IN.
AE7B22	ARC 11-97-87-094 CA161 ORBITER	5.000	.000	2.500	-7.170	BREF	936.6800 IN.
AE7B27	ARC 11-97-87-094 OA161 ORBITER	5.000	.000	5.000	-7.170	XMRP	1076.6800 IN. X0
						YMRP	.0000 IN. Y0
						ZMRP	375.0000 IN. Z0
						SCALE	.0300

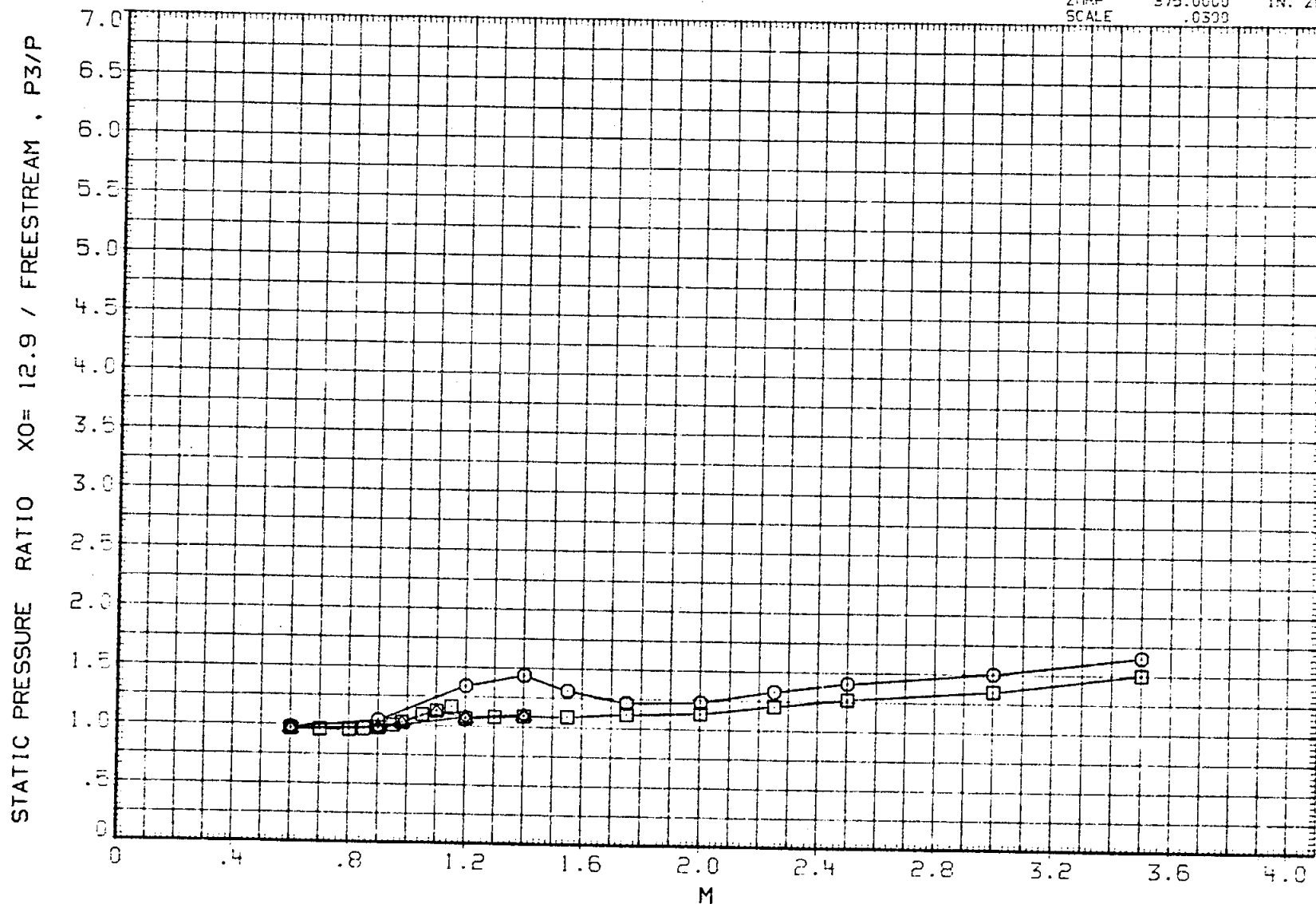


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(C) ALPHA = 12.00

## DATA SET SYMBOL

## CONFIGURATION

BETA	ELEVON	AIRLON	BUILDUP
5.000	.000	.000	-7.170
5.000	.000	.000	-7.170
5.000	.000	2.500	-7.170
5.000	.000	5.000	-7.170

## REFERENCE INFORMATION

SREF	2690.0000	SO. FT.
LREF	474.8000	IN.
BREF	936.6000	IN.
XMPP	1075.6200	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

DATA SET SYMBOL	CONFIGURATION
AE7807	ARC 11-97-87-094 0A161 ORBITER + RAKES
AE7817	ARC 11-97-87-094 0A161 ORBITER
AE7822	ARC 11-97-87-094 0A161 ORBITER
AE7827	ARC 11-97-87-094 0A161 ORBITER

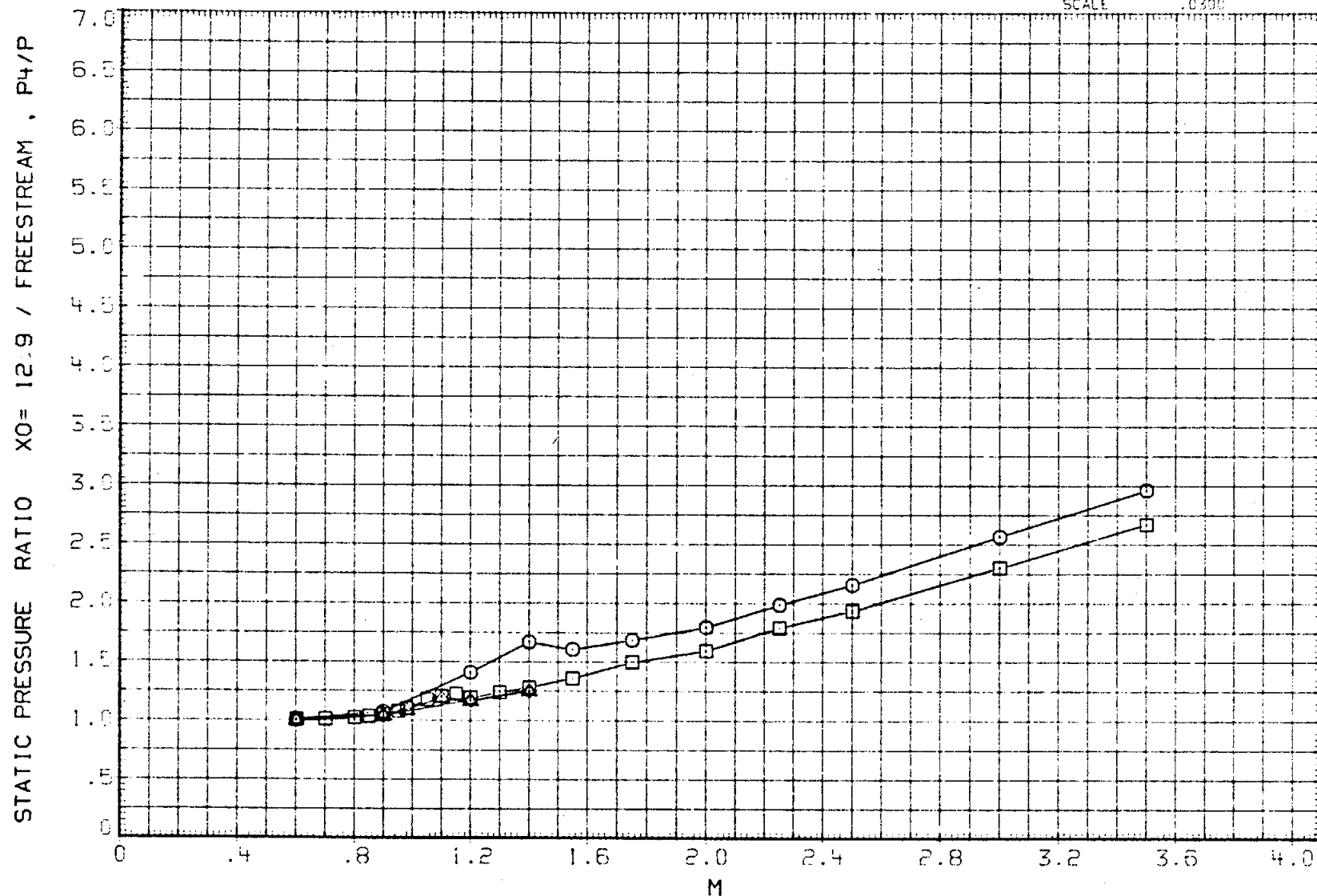


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(C) ALPHA = 12.00



DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
AE7B07	○	ARC 11-97-87-094 0A161 ORBITER + RAKES	5.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
AE7B17	□	ARC 11-97-87-094 0A161 ORBITER	5.000	.000	.000	-7.170	LREF	474.6000	IN.
AE7B22	◇	DATA NOT AVAILABLE	5.000	.000	2.500	-7.170	BREF	936.6800	IN.
AE7B27	△	DATA NOT AVAILABLE	5.000	.000	5.000	-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

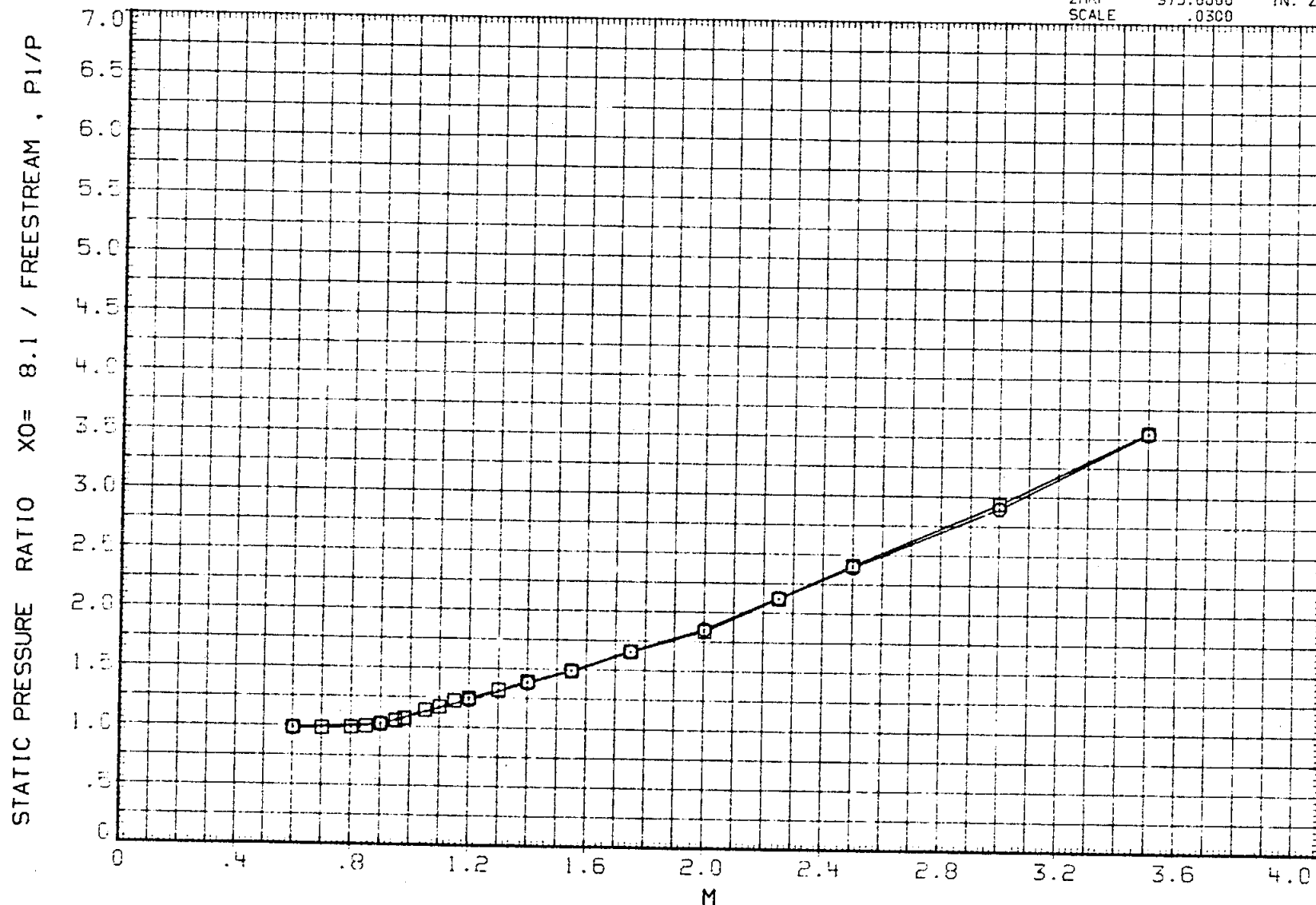


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(D) ALPHA = 18.00

## DATA SET SYMBOL

## CONFIGURATION

AE7807 ○ ARC 11-97-87-094 0A161 ORBITER + RAKES  
 AL7817 □ ARC 11-97-87-094 0A161 ORBITER  
 AE7822 ○ DATA NOT AVAILABLE  
 AE7827 △ DATA NOT AVAILABLE

## BETA

## ELEVON

## AILRON

## BDFLAP

## REFERENCE INFORMATION

5.000 .000 .000 -7.170  
 5.000 .000 .000 -7.170  
 5.000 .000 2.500 -7.170  
 5.000 .000 5.000 -7.170

SREF 2690.0000 SQ.FT.  
 LREF 474.6000 IN.  
 SREF 936.6000 IN.  
 YMRP 1076.6000 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0300

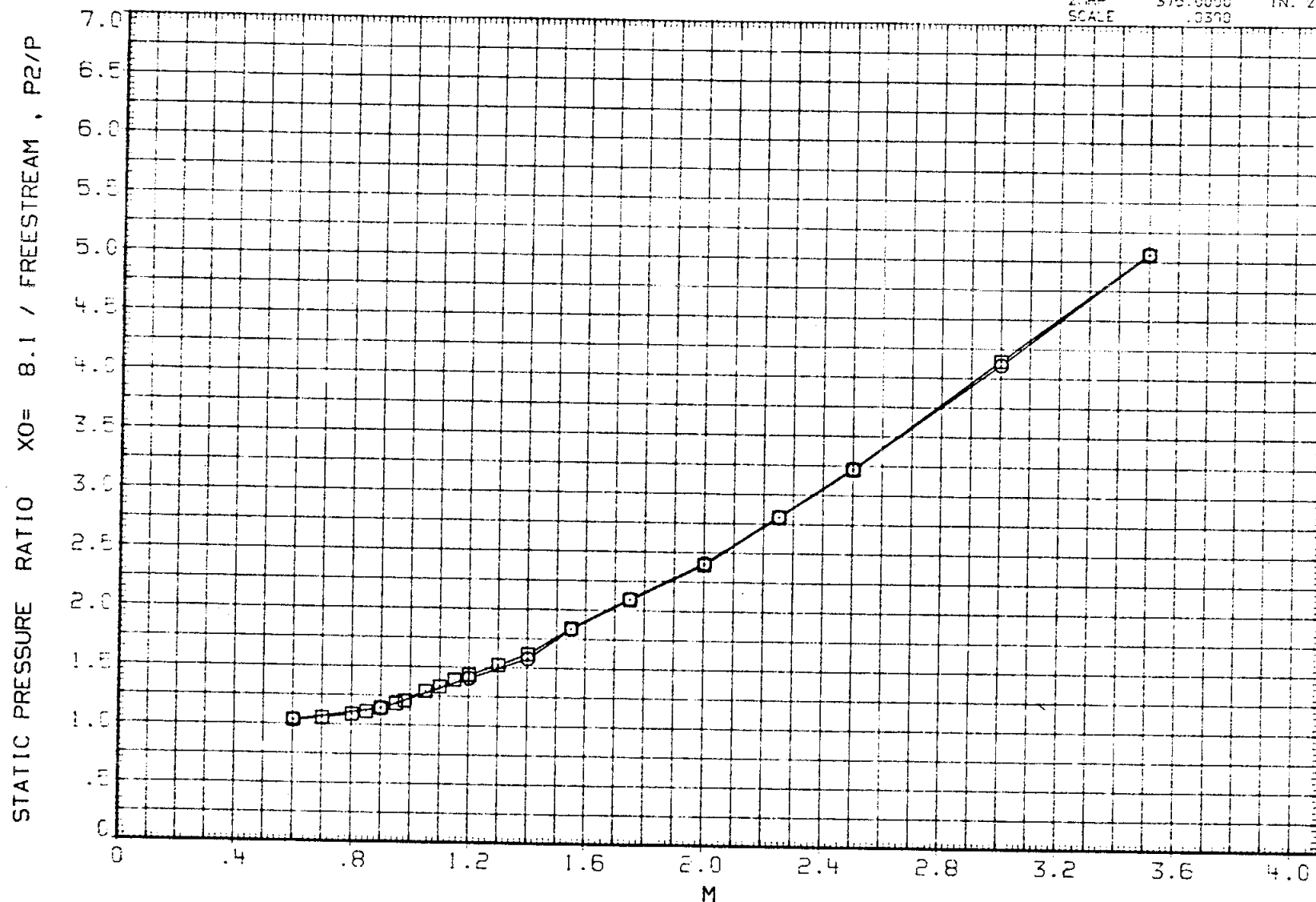


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(D) ALPHA = 18.00

## DATA SET SYMBOL

## CONFIGURATION

AE7807 ○ ARC 11-97-87-094 CA161 ORBITER + RAKES  
 AE7817 □ ARC 11-97-87-094 CA161 ORBITER  
 AE7822 ◇ DATA NOT AVAILABLE  
 AE7827 △ DATA NOT AVAILABLE

BETA	ELEVON	AILRON	BDFLAP
5.000	.000	.000	-7.170
5.000	.000	.000	-7.170
5.000	.000	2.500	-7.170
5.000	.000	5.000	-7.170

## REFERENCE INFORMATION

SREF	2690.0000	50. FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

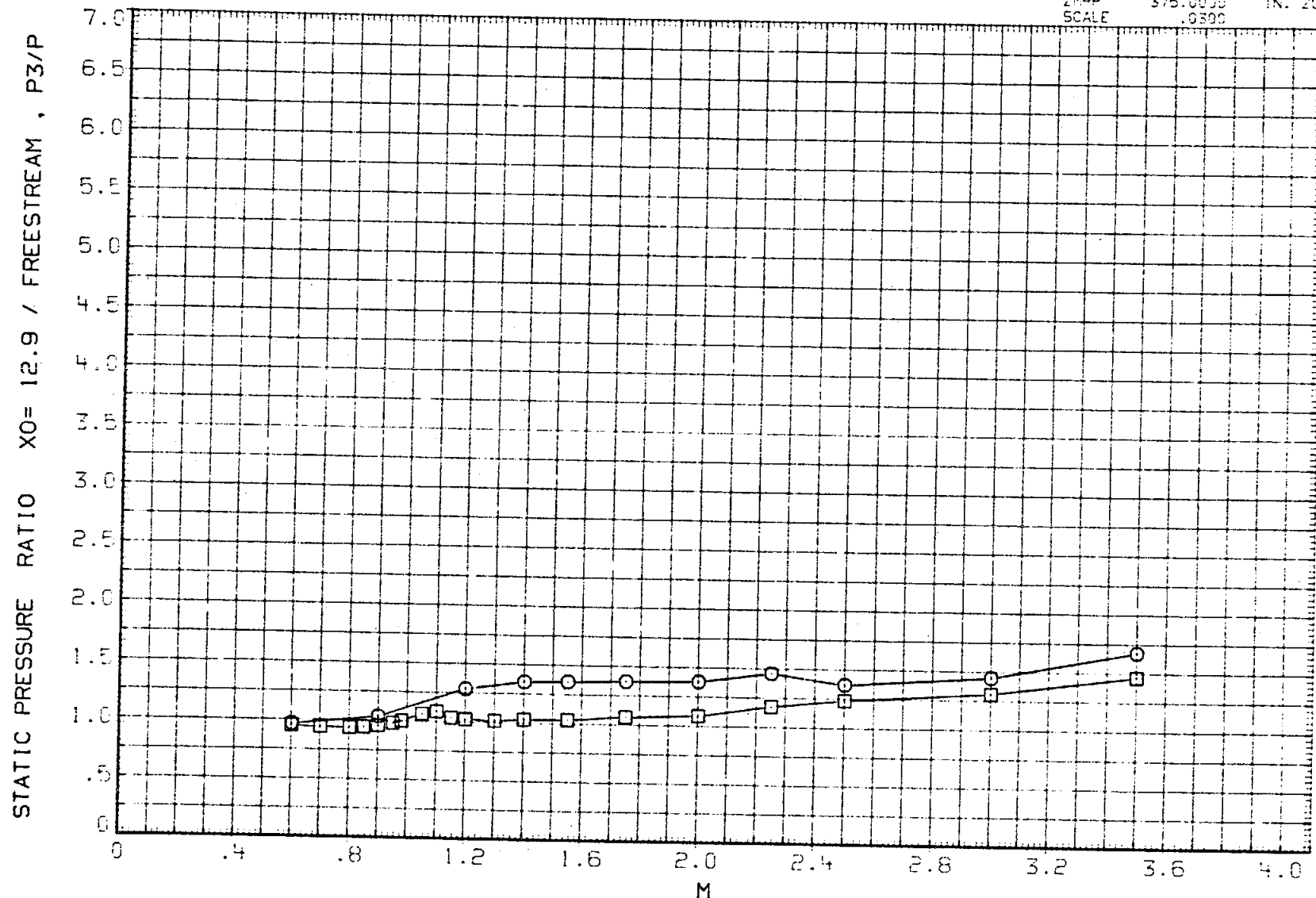


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(D) ALPHA = 18.00

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BDFLAP

REFERENCE INFORMATION

AET807  $\square$  ARC 11-97-87-094 CA161 ORBITER + RAKES  
 AET817  $\square$  ARC 11-97-87-094 CA161 ORBITER  
 AET822  $\diamond$  DATA NOT AVAILABLE  
 AET827  $\triangle$  DATA NOT AVAILABLE

5.000 .000 .000 -7.170  
 5.000 .000 .000 -7.170  
 5.000 .000 2.500 -7.170  
 5.000 .000 5.000 -7.170

SREF 2690.0000 50.00  
 LREF 474.8000 IN.  
 BREF 935.6000 IN.  
 XMRP 1076.6000 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .9300

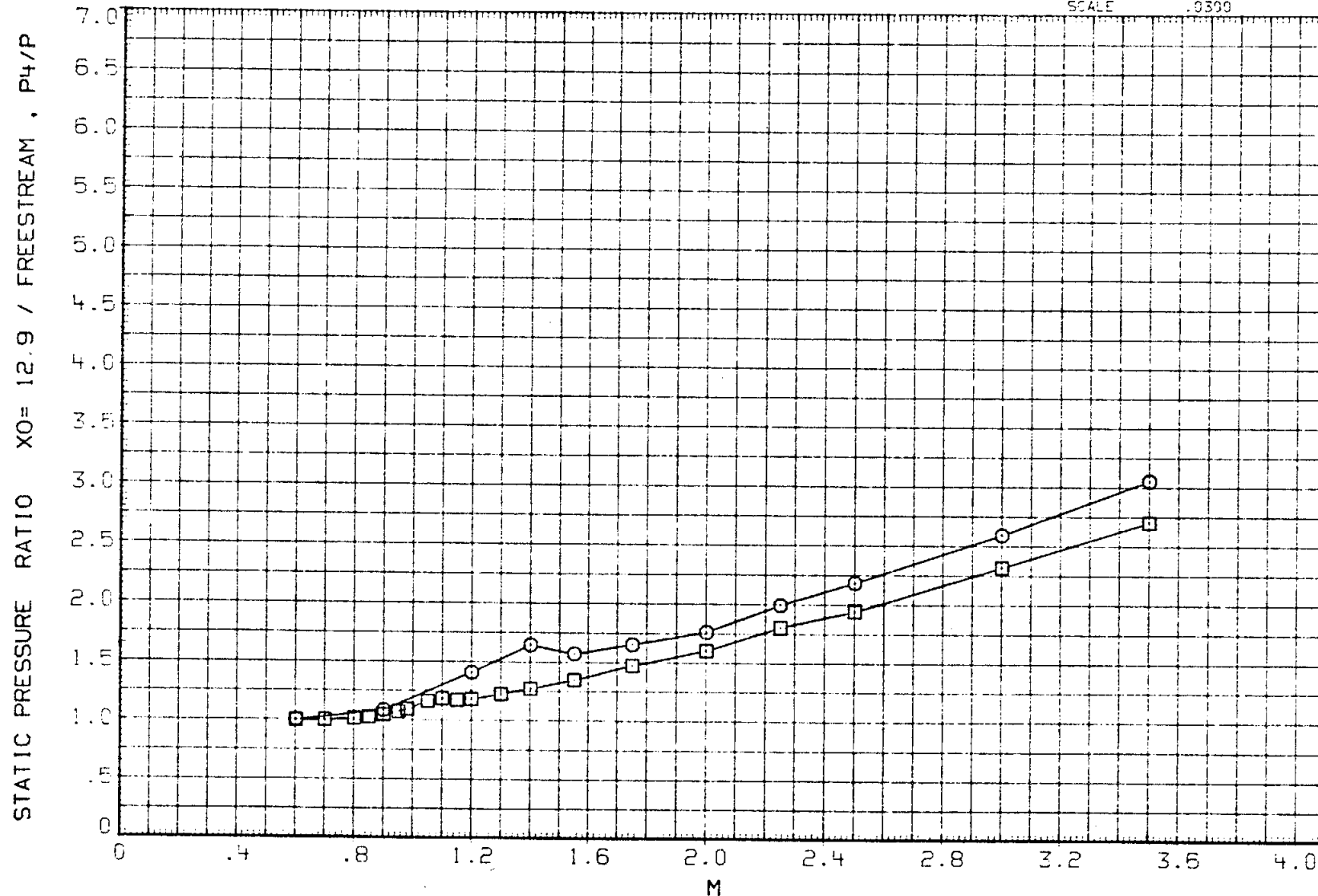


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(D) ALPHA = 18.00

DATA SET	SYMBOL	CONFIGURATION
AE7807	○	ARC 11-97-87-094 0A161 ORBITER + RAKES
AE7817	□	ARC 11-97-87-094 0A161 ORBITER
AE7822	◇	DATA NOT AVAILABLE
AE7827	△	DATA NOT AVAILABLE

BETA	ELEVON	AILRON	BOFLAP
5.000	.000	.000	-7.170
5.000	.000	.000	-7.170
5.000	.000	2.500	-7.170
5.000	.000	5.000	-7.170

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

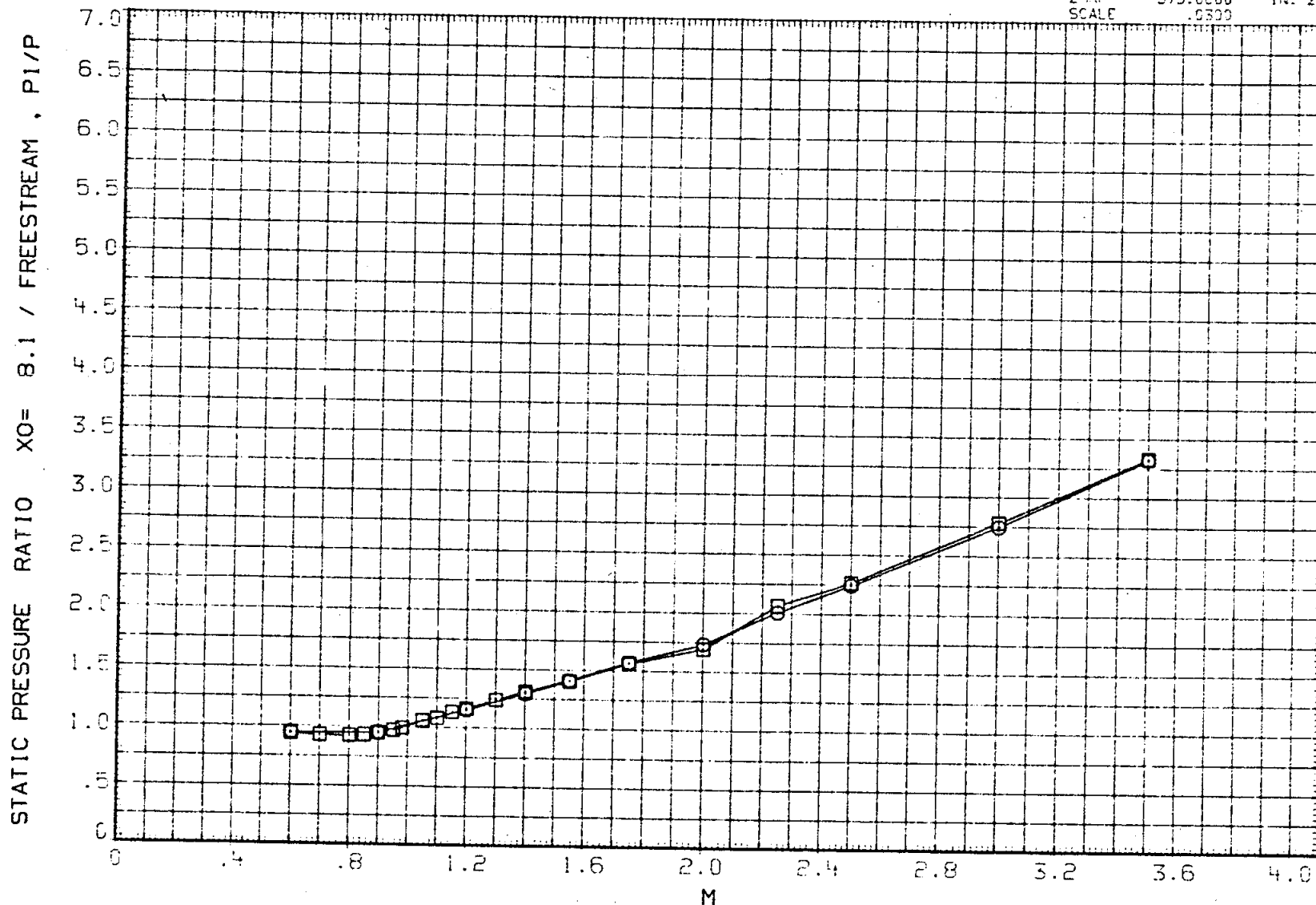


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(E) ALPHA = 24.00

## DATA SET SYMBOL

AE7B07  
AE7B17  
AE7B22  
AE7B27

○  
□  
◇  
△

CONFIGURATION  
ARC 11-97-87-094 OA161 ORBITER + RAKES  
ARC 11-97-87-094 OA161 ORBITER  
DATA NOT AVAILABLE  
DATA NOT AVAILABLE

BETA ELEVEN AILRON BDFLAP  
5.000 .000 .000 -7.170  
5.000 .000 .000 -7.170  
5.000 .000 2.500 -7.170  
5.000 .000 5.000 -7.170

REFERENCE INFORMATION  
SREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 935.6000 IN.  
XMRP 1076.6000 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .5300

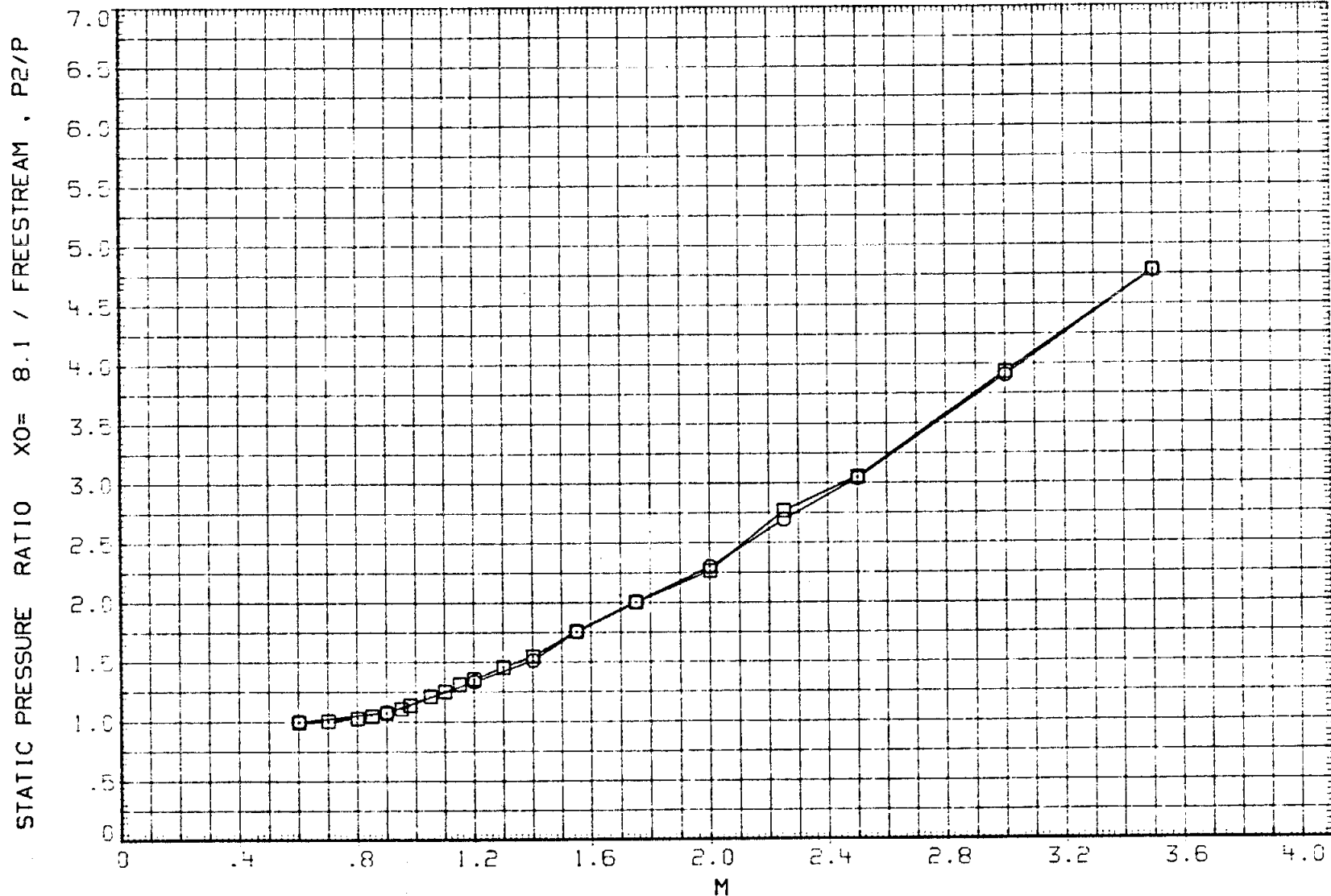


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(E) ALPHA = 24.00

DATA SET SYMBOL

AE7B07  
AE7B17  
AE7B22  
AE7B27

○  
□  
◇  
△

CONFIGURATION

ARC 11-97-87-094 0A161 ORBITER + RAKES  
ARC 11-97-87-094 0A161 ORBITER  
DATA NOT AVAILABLE  
DATA NOT AVAILABLE

BETA

5.000  
5.000  
5.000  
5.000

ELEVON

.000  
.000  
.000  
.000

AILRON

.000  
.000  
2.500  
5.000

BDFLAP

-7.170  
-7.170  
-7.170  
-7.170

REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

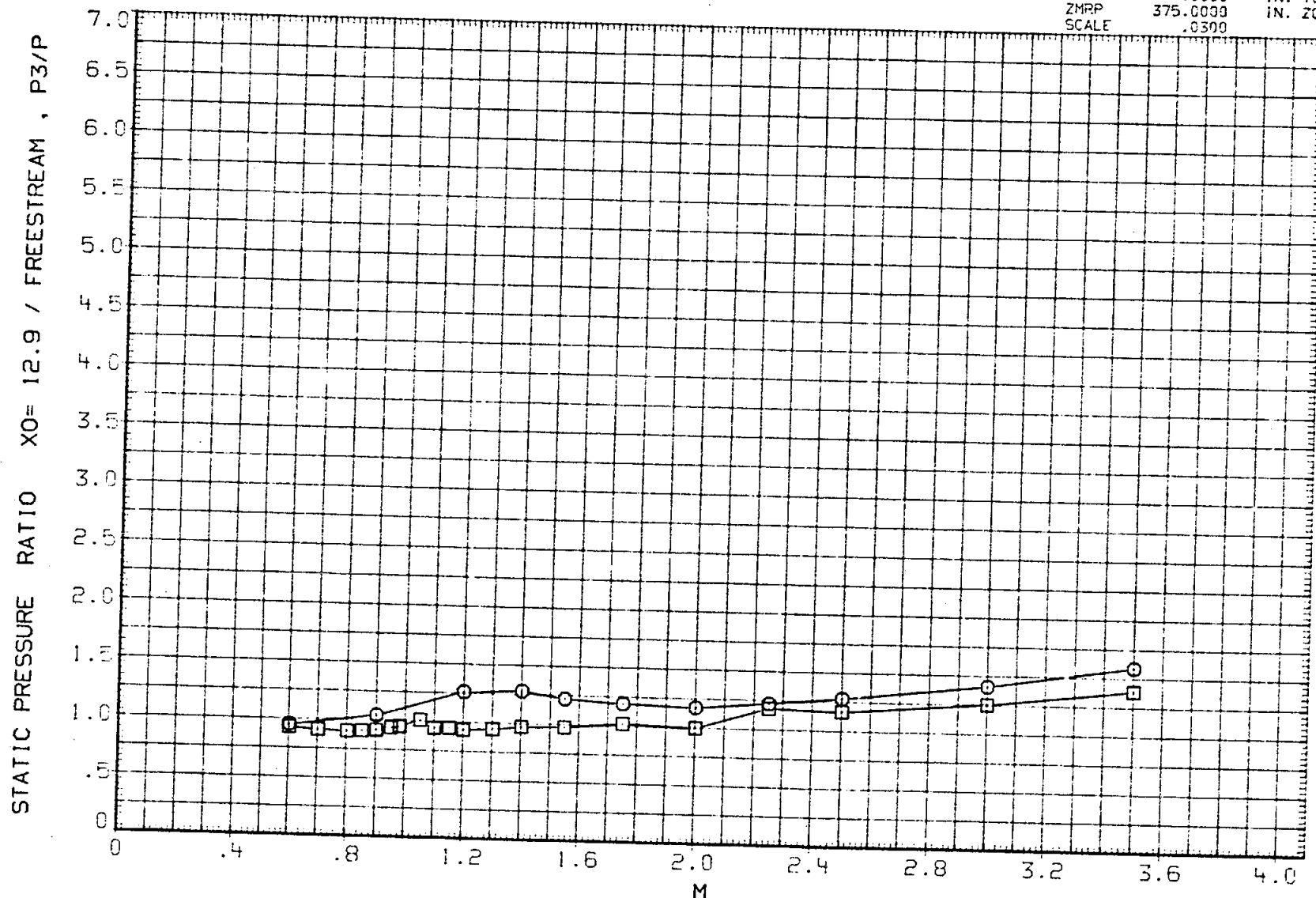


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(E) ALPHA = 24.00

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDCLAP	REFERENCE INFORMATION		
AE7B07	○	ARC 11-97-87-094 OA161 ORBITER - RAKES	5.000	.000	.000	-7.170	SREF	2690.0000	SQ. FT.
AE7B17	□	ARC 11-97-87-094 OA161 ORBITER	5.000	.000	.000	-7.170	LREF	474.8000	IN.
AE7B22	◇	DATA NOT AVAILABLE	5.000	.000	2.500	-7.170	SREF	936.6800	IN.
AE7B27	△	DATA NOT AVAILABLE	5.000	.000	5.000	-7.170	XMRP	1076.6800	IN. XO
							YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

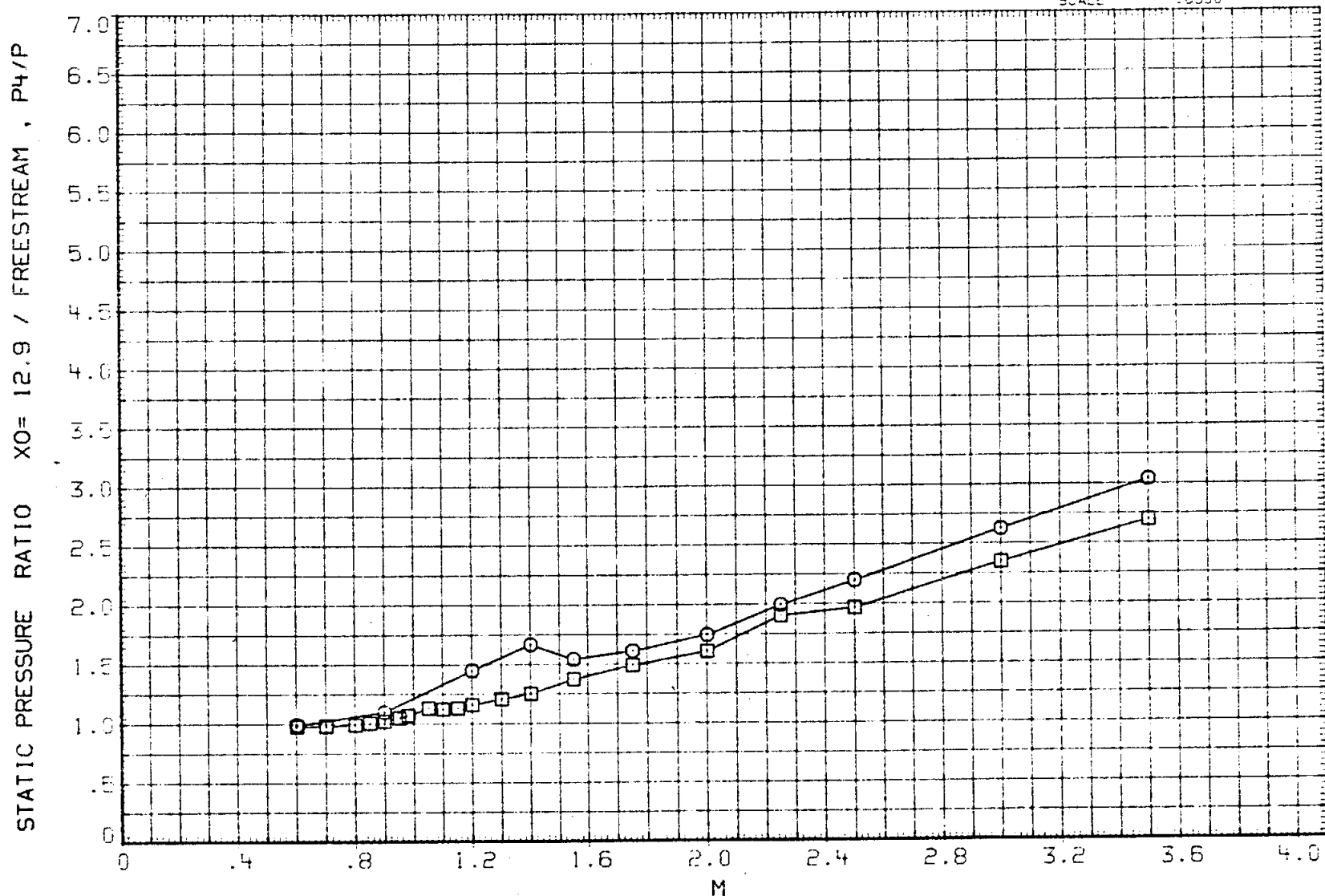


FIG. 30 FUSELAGE STATIC PRESSURE RATIO REPEATABILITY

(E) ALPHA = 24.00



(GE7Y38) ARC 11-97-87-094 0A161 ORBITER + PROBES

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	ELEVON	BOFLAP	DATASET	BETA	DATASET	BETA	REFERENCE INFORMATION
0.000	8.000	AILRON	.300	.000	.000	GE7Y38	-8.000	GE7Y39	-5.000	SREF 2690.0000 SQ.FT.
0.000	12.000				-7.170	GE7Y40	-2.000	GE7Y41	.000	LREF 474.8000 IN.
0.000	16.000					GE7Y43	5.000	GE7Y44	8.000	BREF 935.6800 IN.
0.000	20.000									XMPP 1076.6200 IN. XO
0.000	24.000									YMPP .0000 IN. YO
										ZMPP 375.0000 IN. ZO
										SCALE .0500

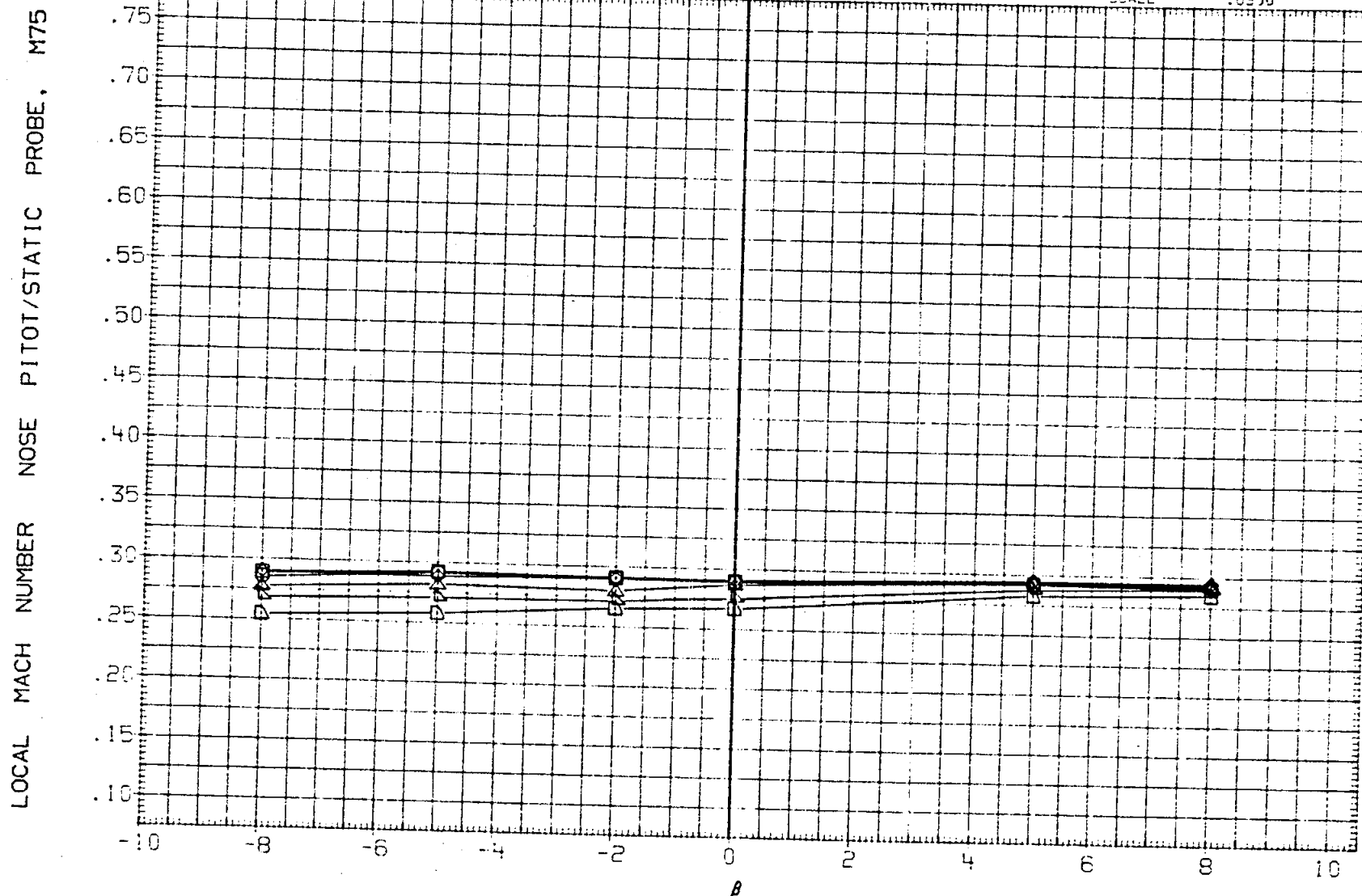


FIG. 31 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LEET	474.8000	IN.
BREF	936.6000	IN.
XMPP	1076.6600	IN. X0
YMPP	.0000	IN. Y0
ZMPP	375.0000	IN. Z0
SCALE	.0300	

1.000	MACH	.600	ELEVON	.000
9.000	AILRON	.000	BDFLAP	-7.170
12.000				
16.000				
20.000				
24.000				

GE7Y38	-8.000
GE7Y40	-8.000
GE7Y43	5.000

GE7Y38	-5.000
GE7Y41	.000
GE7Y44	8.000

LOCAL MACH NUMBER NOSE PITOT/STATIC PROBE, M75

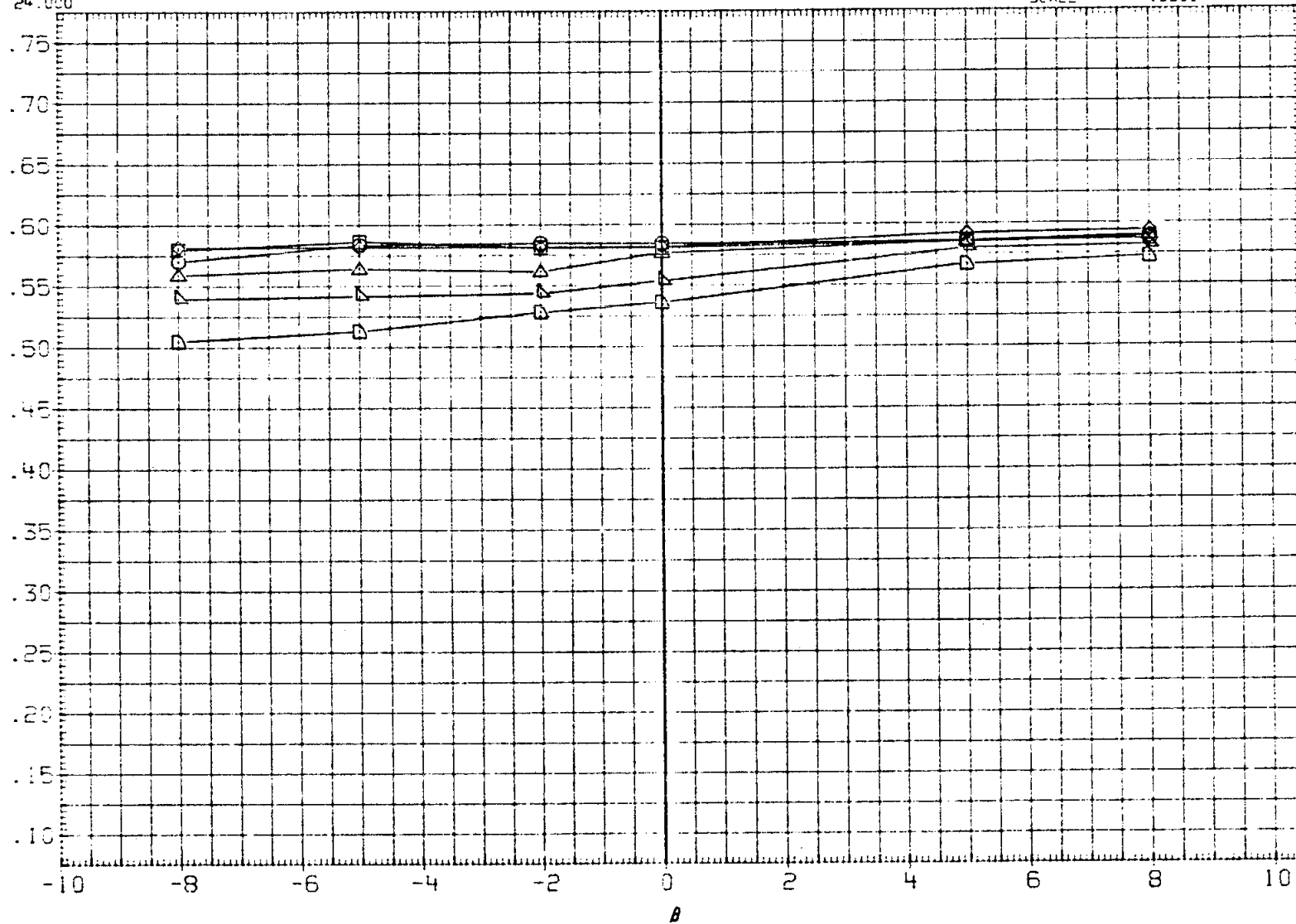


FIG. 31 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

(GE7Y38) ARC 11-97-87-094 OA161 ORBITER + PROBES

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	ELEVON	BOFLAP	DATASET	BETA	DATASET	BETA	SREF	2690.0000	SO.FT.
	8.000	AILRON	.300	.000	-7.170	GE7Y38	-8.000	GE7Y39	-5.000	LREF	474.8000	IN.
	12.000		.000			GE7Y40	-2.000	GE7Y41	.000	BREF	936.6800	IN.
	16.000					GE7Y43	5.000	GE7Y44	8.000	XMRP	1076.6800	IN. X0
	20.000									YMRP	.0000	IN. Y0
	24.000									ZMRP	375.0000	IN. Z0
										SCALE	.0300	

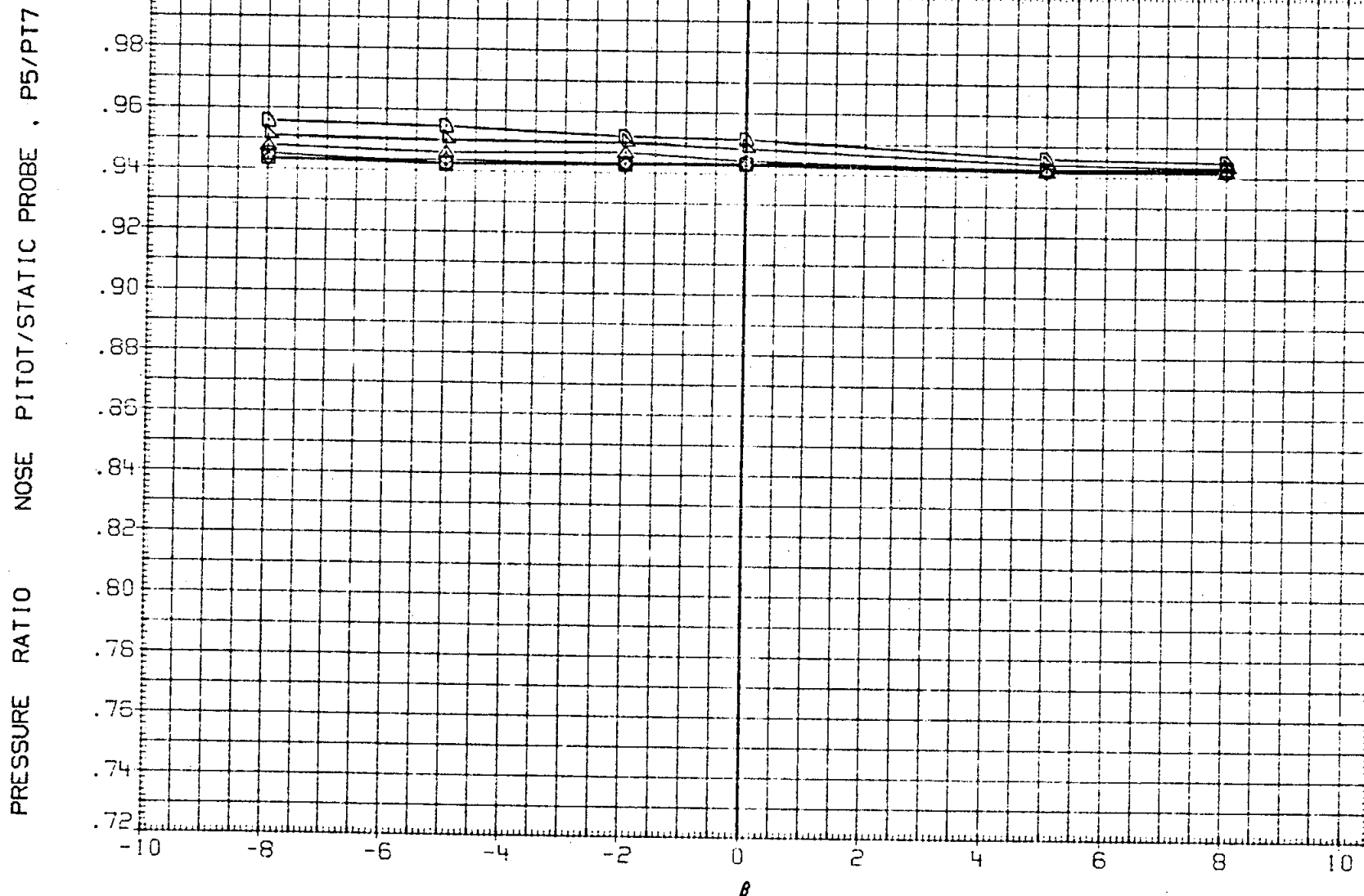


FIG. 31 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

PRESSURE RATIO  
 NOSE PITOT/STATIC PROBE , P5/P17

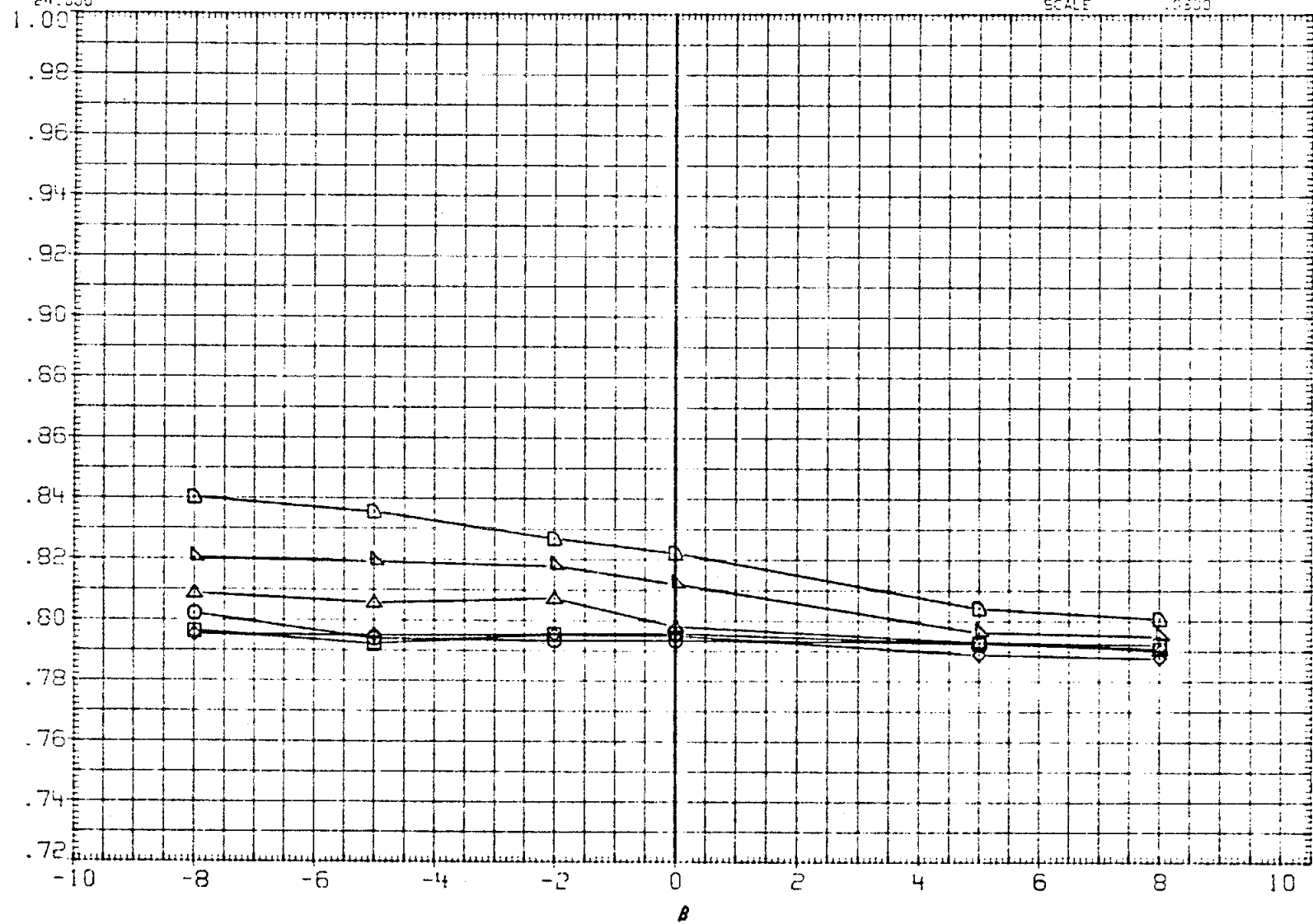


FIG. 31 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

(GE7C38) ARC 11-97-87-094 0A161 ORBITER + PROBES

SYMBOL

ALPHA

MACH  
A1LRON

PARAMETRIC VALUES

ELEVON  
BOFLAP

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

COMPRESSIBLE Q RATIO  
QC PROBE / QC FREESTREAM . Q75/QC

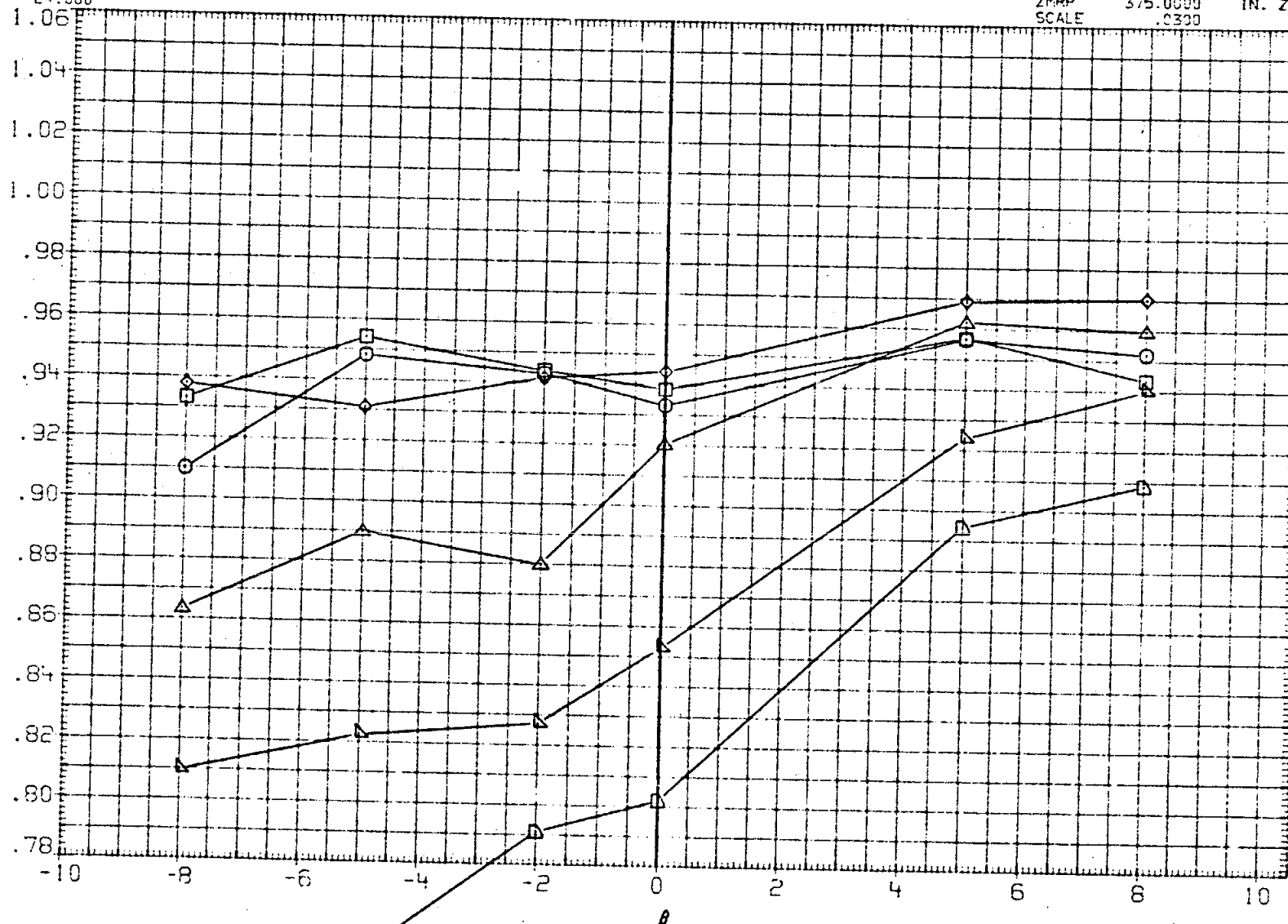


FIG. 31 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA  
AT VARIOUS ALPHAS

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

SREF	2690.0000	SQ. FT.
LREF	474.8000	IN.
BREF	936.8000	IN.
XMRP	1076.6800	IN. XO
YMRP	1000.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	0.0000	

COMPRESSIBLE Q RATIO QC PROBE / QC FREESTREAM . Q75/QC

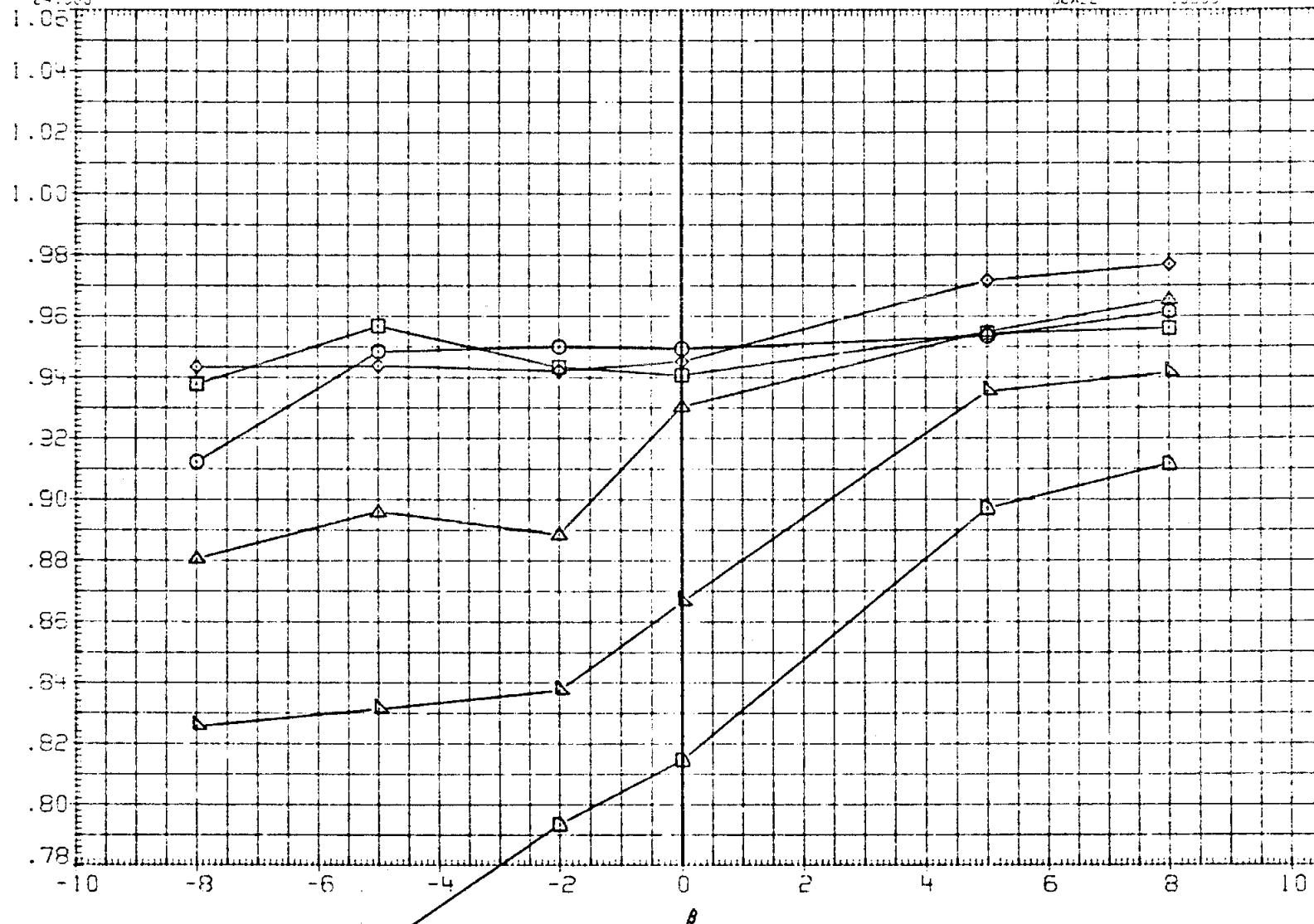


FIG. 31 NOSE PITOT-STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

(GE7C38) ARC 11-97-87-094 OA161 ORBITER + PROBES

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	ELEVON	BOFLAP	DATASET	BETA	DATASET	BETA	REFERENCE INFORMATION	SREF	2690.0000	SQ.FT.
	8.000	AILRON	.300	.000	.000	GE7C38	-8.000	GE7C39	-5.000	LREF	474.8000	IN.	
	12.000				-7.170	GE7C40	-2.000	GE7C41	.000	BREF	936.6800	IN.	
	16.000					GE7C43	5.000	GE7C44	8.000	XMRP	1076.6800	IN. X0	
	20.000									YMRP	.0000	IN. Y0	
	24.000									ZMRP	375.0000	IN. Z0	
										SCALE	.0300		

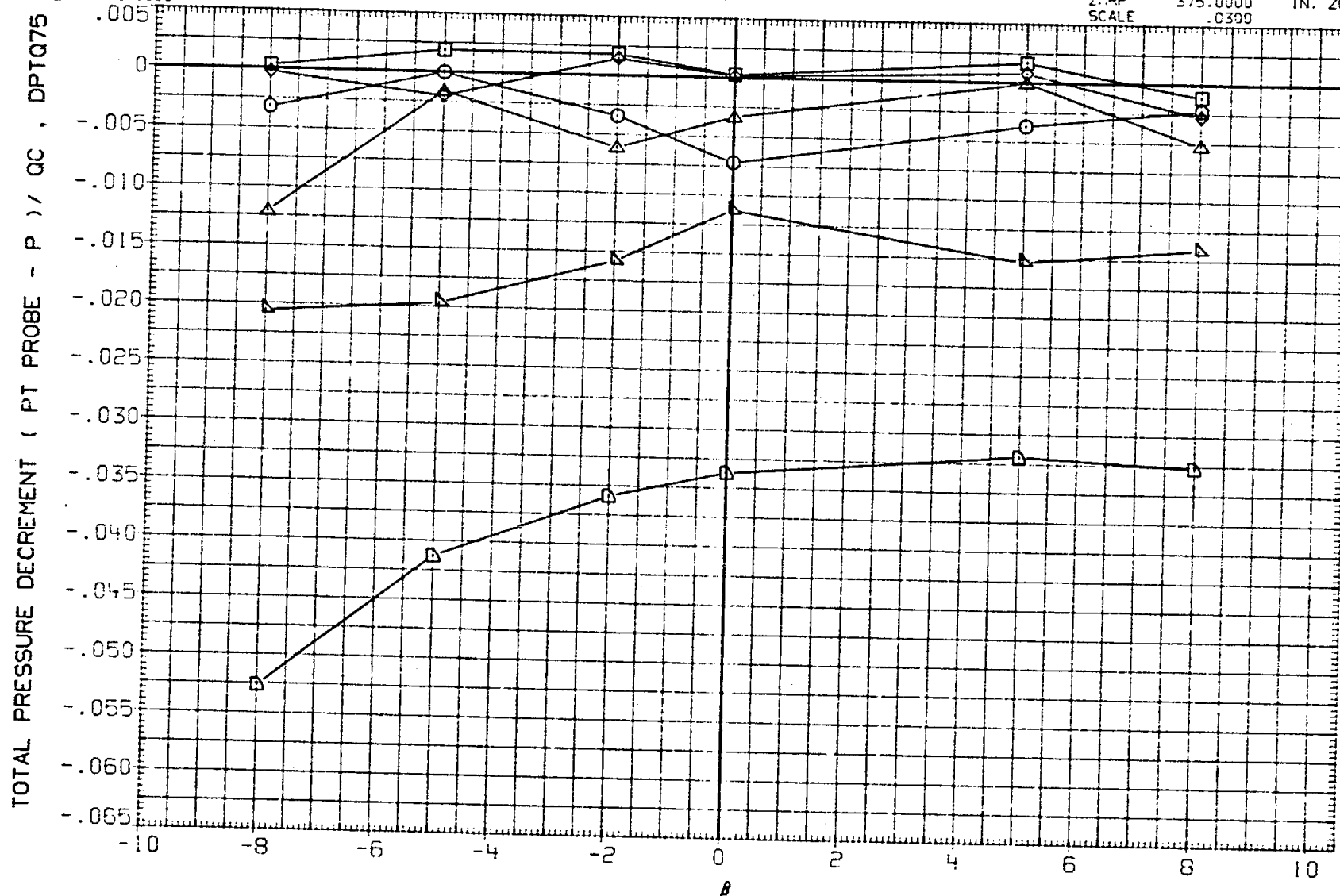


FIG. 31 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

SREF	2690.0000	SO.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMFP	1076.6800	IN. XO
YMFP	.0000	IN. YO
ZMFP	375.0000	IN. ZO
SCALE	.0300	

TOTAL PRESSURE DECREMENT (PT PROBE - P) / QC . DPTQ75

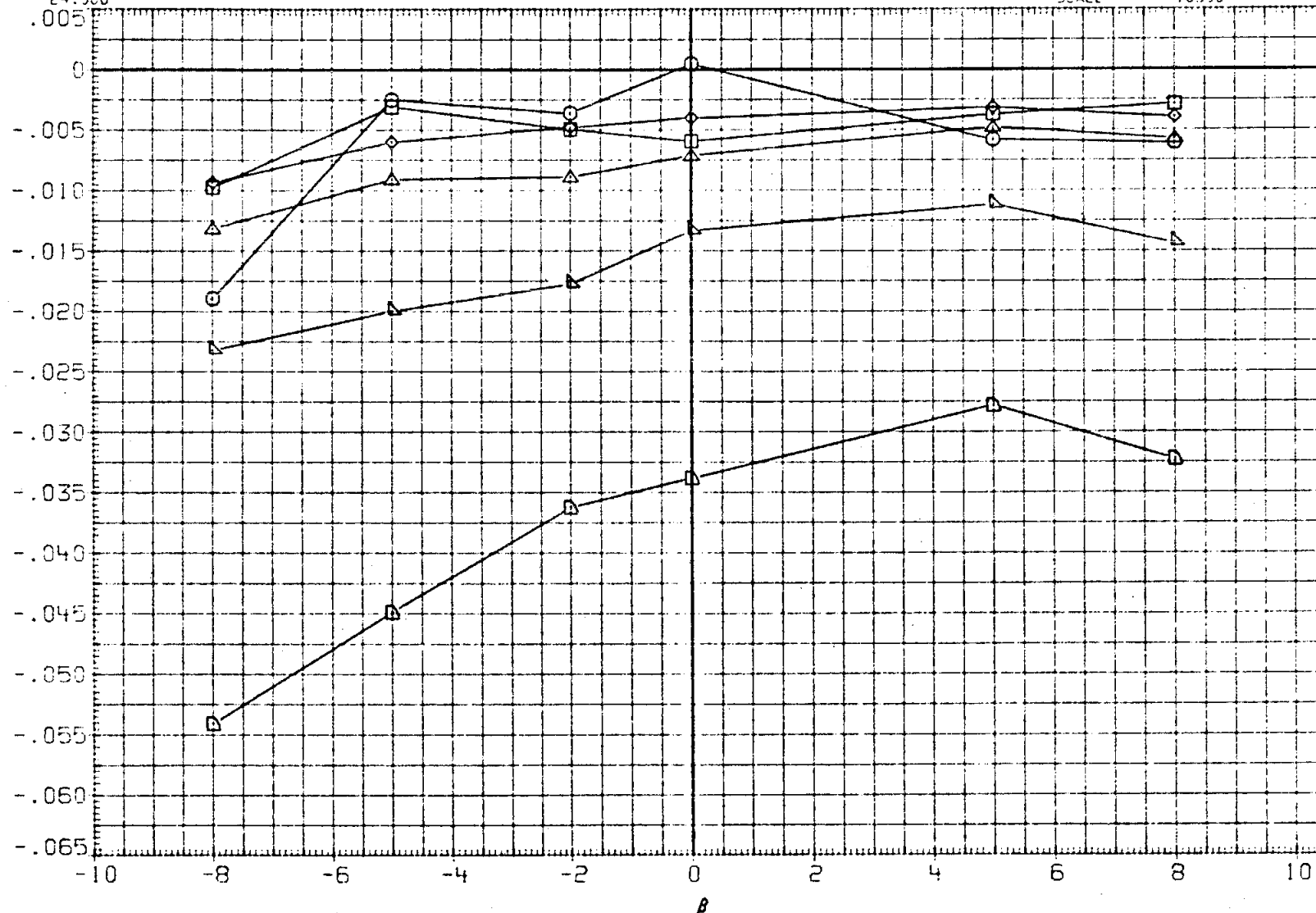


FIG. 31 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS



(GE7C38) ARC 11-97-87-094 0A161 ORBITER + PROBES

SYMBOL  
 D  
 Δ  
 □  
 ○  
 ◇

ALPHA  
 .000  
 8.000  
 12.000  
 16.000  
 20.000  
 24.000

MACH  
 AILRON

PARAMETRIC VALUES  
 .300 ELEVON  
 .000 BDFLAP

.000  
 -7.170

DATASET  
 GE7C38  
 GE7C40  
 GE7C43

BETA  
 -8.000  
 -2.000  
 5.000

DATASET  
 GE7C39  
 GE7C41  
 GE7C44

BETA  
 -5.000  
 .000  
 8.000

REFERENCE INFORMATION  
 SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMPP 1076.6800 IN. XO  
 YMP 10000 IN. YO  
 ZMP 375.0000 IN. ZO  
 SCALE .0300

STATIC PRESSURE DECREMENT ( PS PROBE - P ) / QC . DPQ75

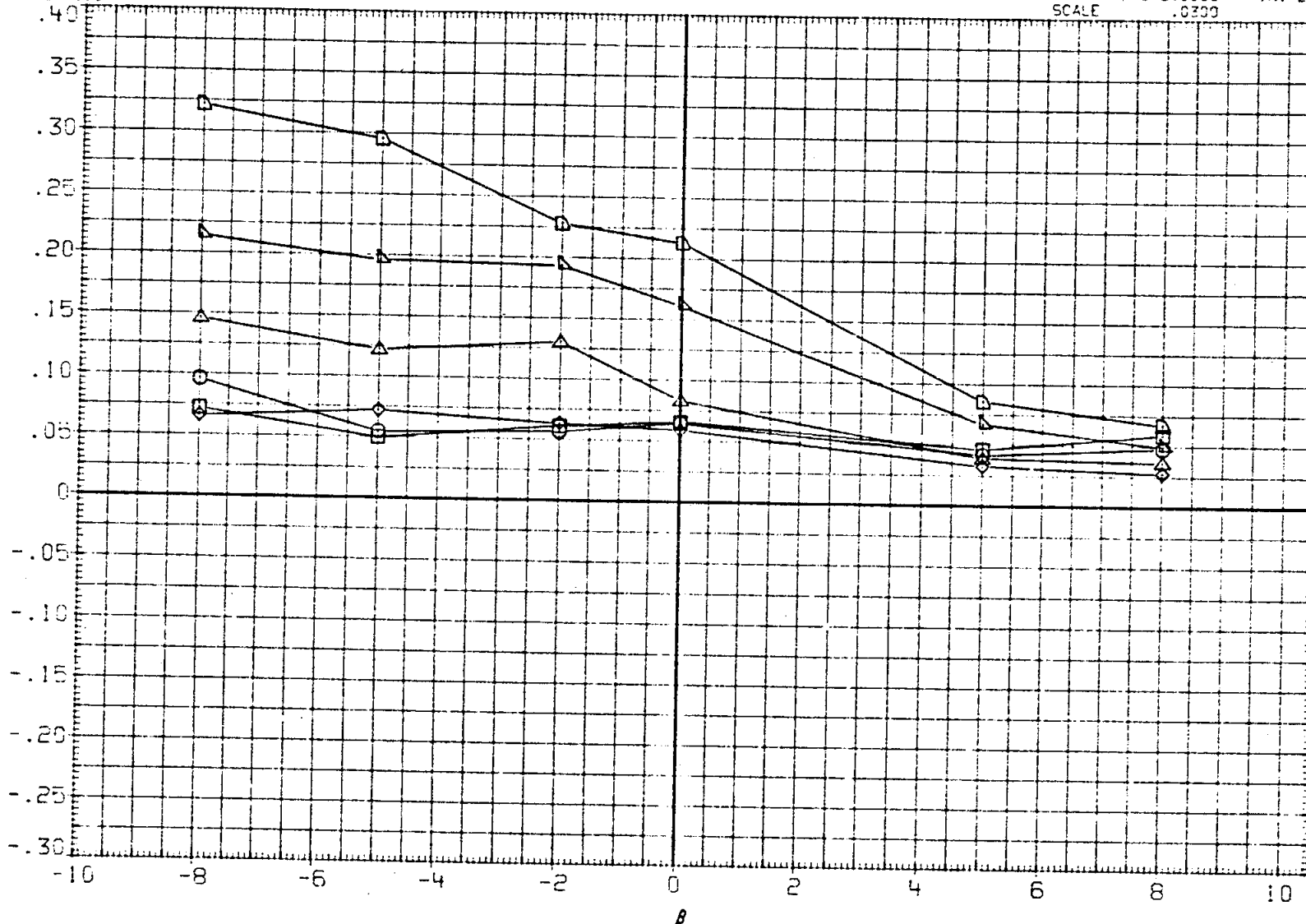


FIG. 31 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

.000  
8.000  
12.000  
16.000  
20.000  
24.000

MACH  
ATLON

.600  
.000  
ELEVON  
BDFLAP

.000  
-7.170

GE7038  
GE7040  
GE7043

-8.000  
2.000  
5.000

GE7039  
GE7041  
GE7044

-5.000  
.000  
8.000

SREF 2590.0000 SQ. FT.  
LREF 474.8000 IN.  
BREF 936.6000 IN.  
XMRP 1076.6000 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

STATIC PRESSURE DECREMENT ( PS PROBE - P ) / QC . DPQ75

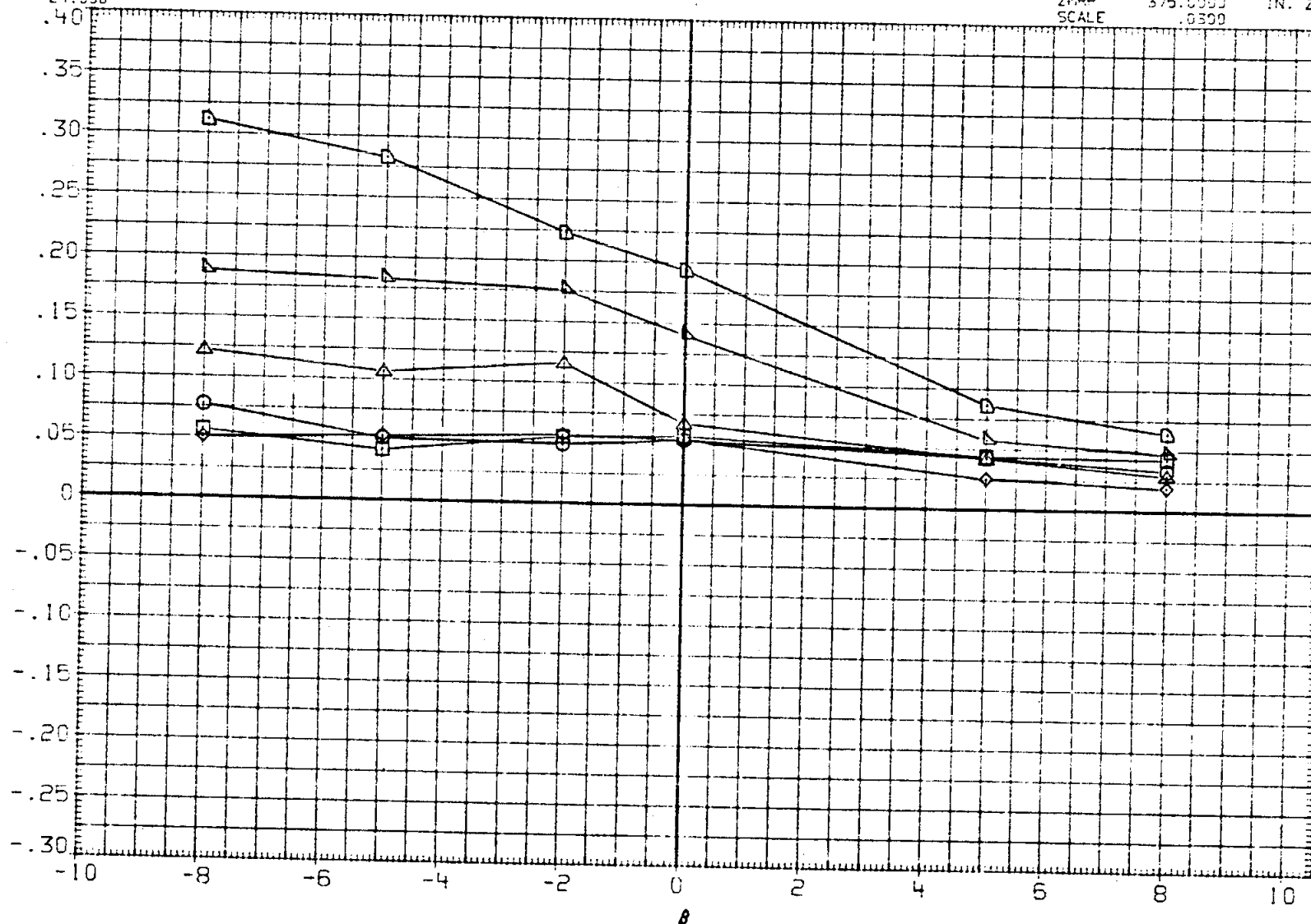


FIG. 31 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

(GE7Y45) ARC 11-97-87-094 0A161 ORBITER + PROBES

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	ELEVON	15.000	DATASET	BETA	DATASET	BETA	REFERENCE INFORMATION	SREF	2690.0000	SO.FT.
	8.000	AILRON	.300	BDFLAP	-7.170	GE7Y45	-5.000	GE7Y46	-2.000	LREF	474.8000	IN.	
	12.000		.000			GE7Y47	.000	GE7Y48	2.000	BREF	936.6800	IN.	
	16.000					GE7Y49	5.000			XMRP	1076.6800	IN.	XO
	20.000									YMRP	.0000	IN.	YO
	24.000									ZMRP	375.0000	IN.	ZO
										SCALE	.0300		

LOCAL MACH NUMBER NOSE PITOT/STATIC PROBE, M75

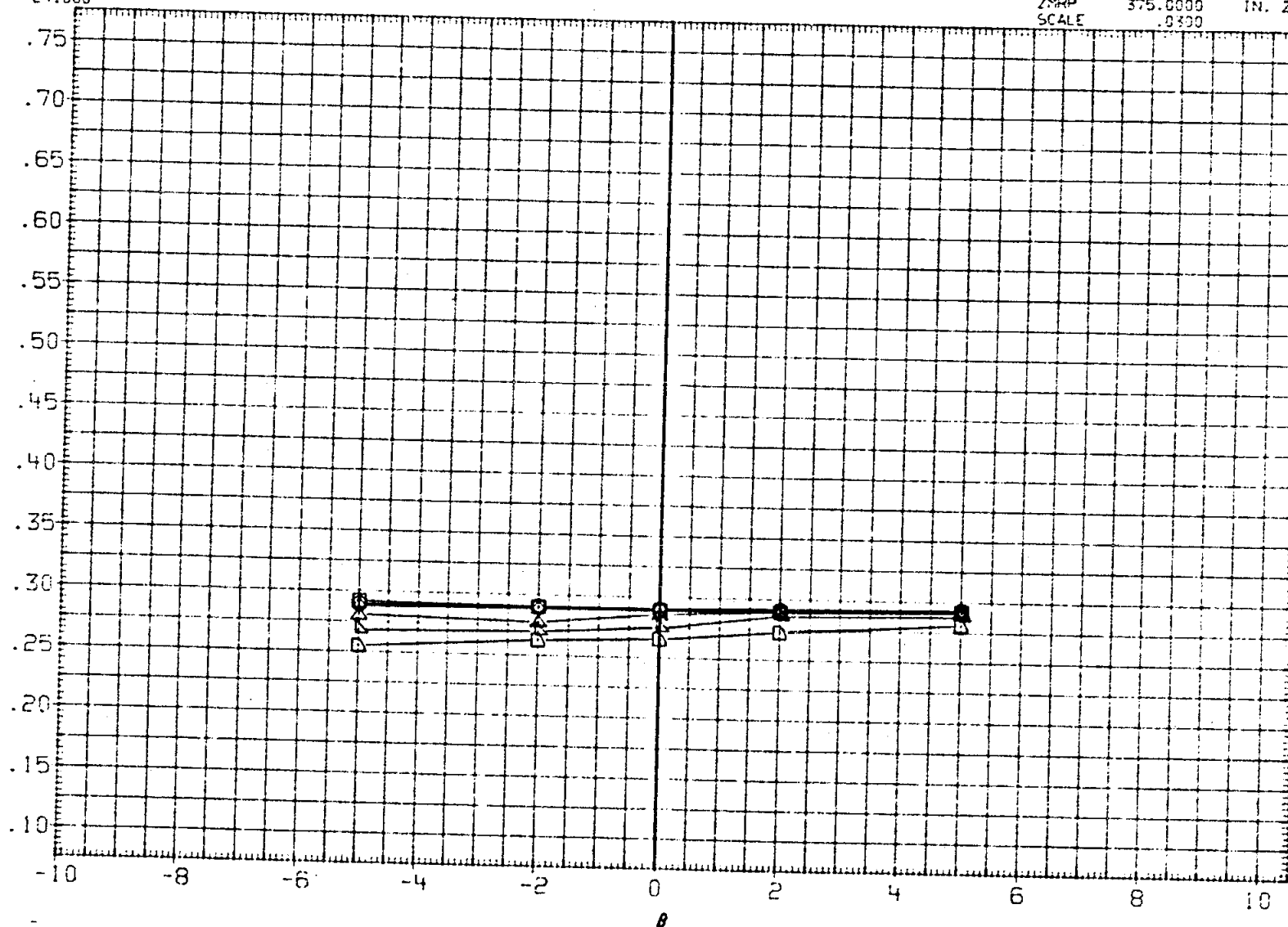


FIG. 31 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

D77000

0.000  
8.000  
12.000  
16.000  
20.000  
24.000MACH  
AILRON.000  
.000ELEVON  
BOFLAP15.000  
-7.170GE7Y45  
GE7Y47  
GE7Y49-5.000  
.000  
5.000GE7Y46  
GE7Y48-2.000  
2.000

SYMBOL	ALPHA	PARAMETRIC VALUES	DATASET	BETA	REFERENCE INFORMATION
SREF	2690.0000	SO. FT.			
LREF	474.8000	IN.			
BREF	926.6000	IN.			
XMRP	1076.6000	IN. X0			
YMRP	.0000	IN. Y0			
ZMRP	375.0000	IN. Z0			
SCALE	.0000				

LOCAL MACH NUMBER NOSE PITOT/STATIC PROBE, M75

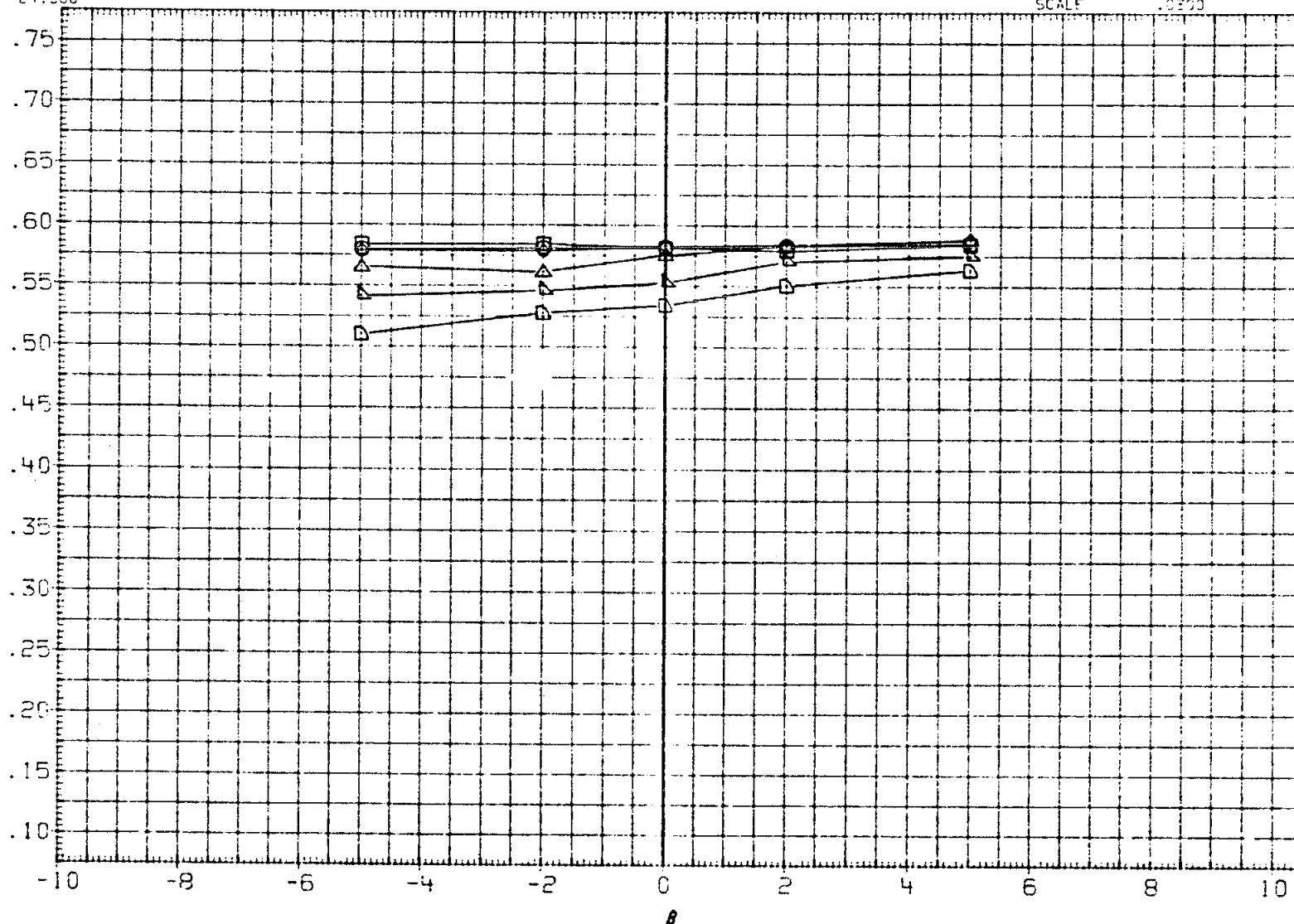


FIG. 31 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

(GE7Y45) ARC 11-97-87-094 OA161 ORBITER + PROBES

SYMBOL

ALPHA

.000  
8.000  
12.000  
16.000  
20.000  
24.000

MACH  
ATLRON

PARAMETRIC VALUES

.300 ELEVON  
.000 BOFLAP

15.000  
-7.170

DATASET

GE7Y45  
GE7Y47  
GE7Y49

BETA

-5.000  
.000  
5.000

DATASET

GE7Y46  
GE7Y48

BETA

-2.000  
2.000

REFERENCE INFORMATION

SPEF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
DREF 935.6900 IN.  
XMPP 1076.6900 IN. XO  
YMPP .0000 IN. YO  
ZMPP 375.0000 IN. ZO  
SCALE .0300

PRESSURE RATIO NOSE PITOT/STATIC PROBE . P5/PT7

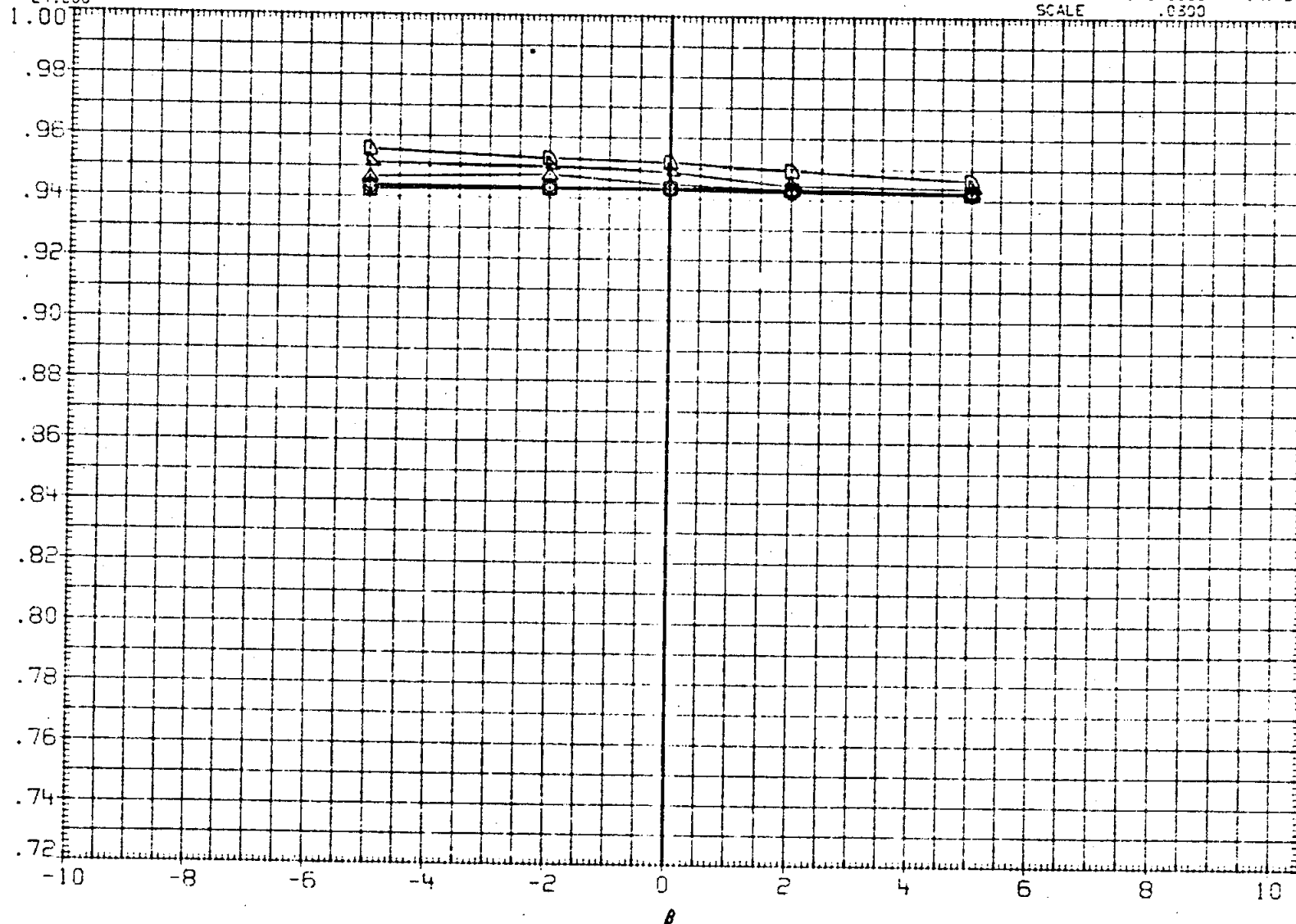


FIG. 31 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS



(GE7C45) ARC 11-97-87-094 0A161 ORBITER + PROBES

SYMBOL

ALPHA

MACH  
AILRON

PARAMETRIC VALUES

ELEVON  
BOFLAP

15.000  
-7.170

DATASET

BETA

GE7C45 -5.000  
GE7C47 .000  
GE7C49 5.000

DATASET

BETA

GE7C46 -2.000  
GE7C48 2.000

REFERENCE INFORMATION

SREF 2690.0000 SQ. FT.  
LREF 474.8000 IN.  
BREF 936.6900 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0500

COMPRESSIBLE Q RATIO QC PROBE / QC FREESTREAM . Q75/QC

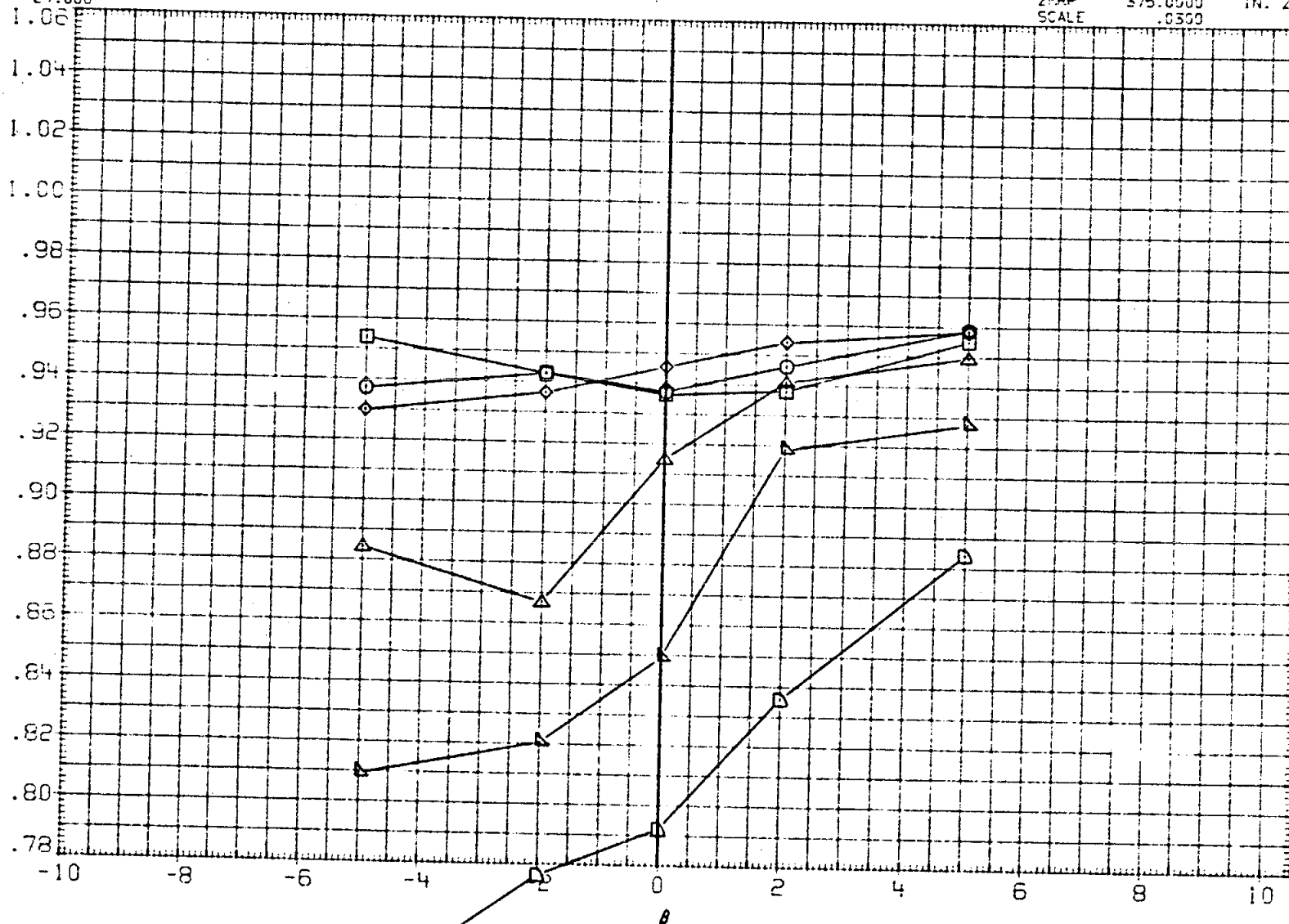


FIG. 31 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

SREF	2690.0000	SG.FT.
LRFP	474.8000	IN.
DRFP	936.6900	IN.
XMPP	1076.6800	IN. X0
YMPP	1000.0000	IN. Y0
ZMPP	375.0000	IN. Z0
SCALE	.0300	

COMPRESSIBLE Q RATIO QC PROBE / QC FREESTREAM . Q75/QC

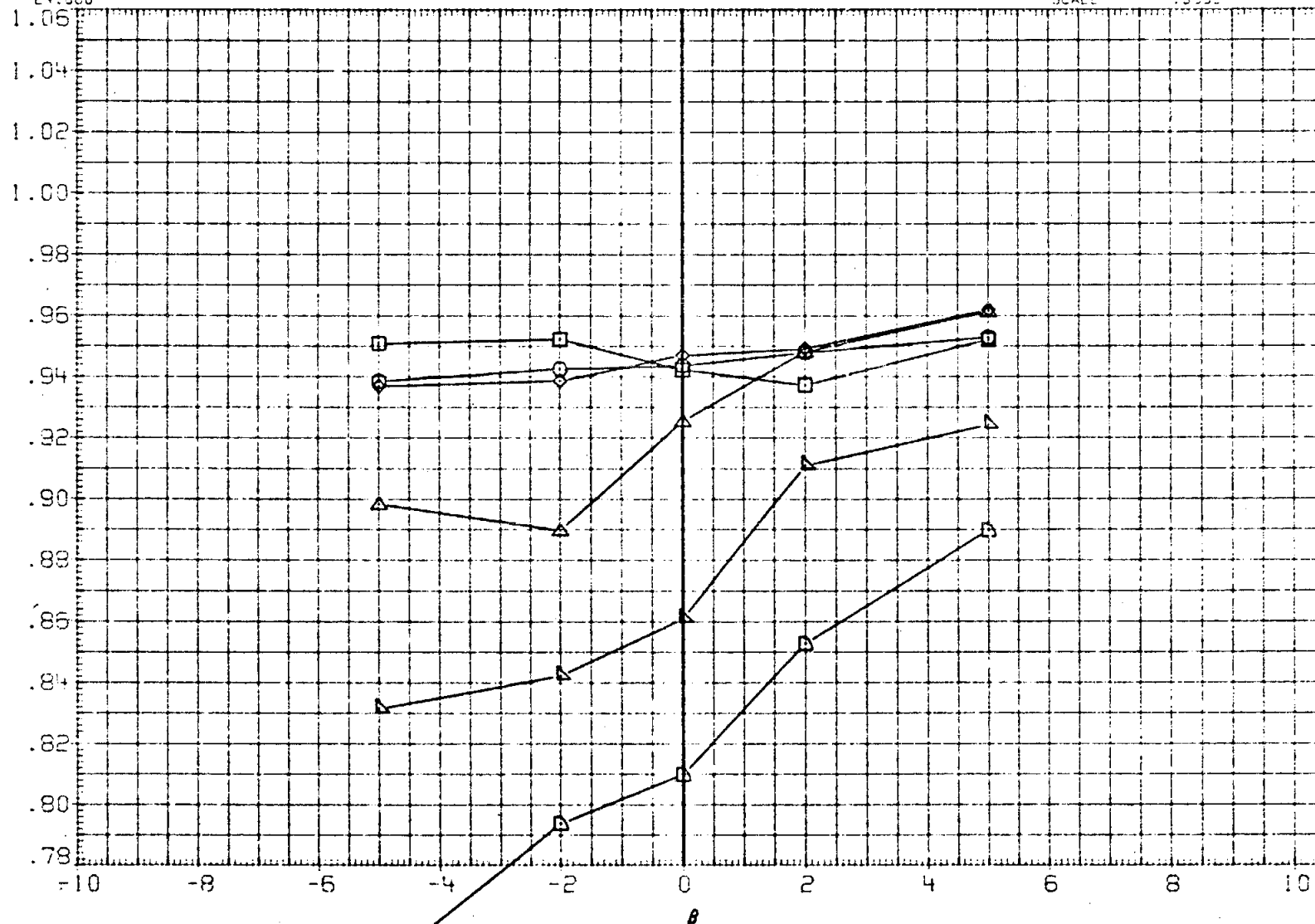


FIG. 31 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA  
D AT VARIOUS ALPHAS



(GE7C45) ARC 11-97-87-094 0A161 ORBITER + PROBES

CAT1 ORBITER + PROBES										
SYMBOL	ALPHA	PARAMETRIC VALUES		DATASET		BETA	DATASET	BETA	REFERENCE INFORMATION	
000000	.000	MACH	.300	ELEVON	15.000	GE7C45	-5.000	GE7C46	-2.000	SREF 2690.0000 50.FT.
000000	8.000	AILRON	.000	BDFLAP	-7.170	GE7C47	.000	GE7C48	2.000	LREF 474.8000 IN.
000000	12.000					GE7C49	5.000			BREF 936.6800 IN.
000000	16.000									XMRP 1076.6800 IN. XO
000000	20.000									YMRP .0000 IN. YO
000000	24.000									ZMRP 375.0000 IN. ZO
000000										SCALE .0300

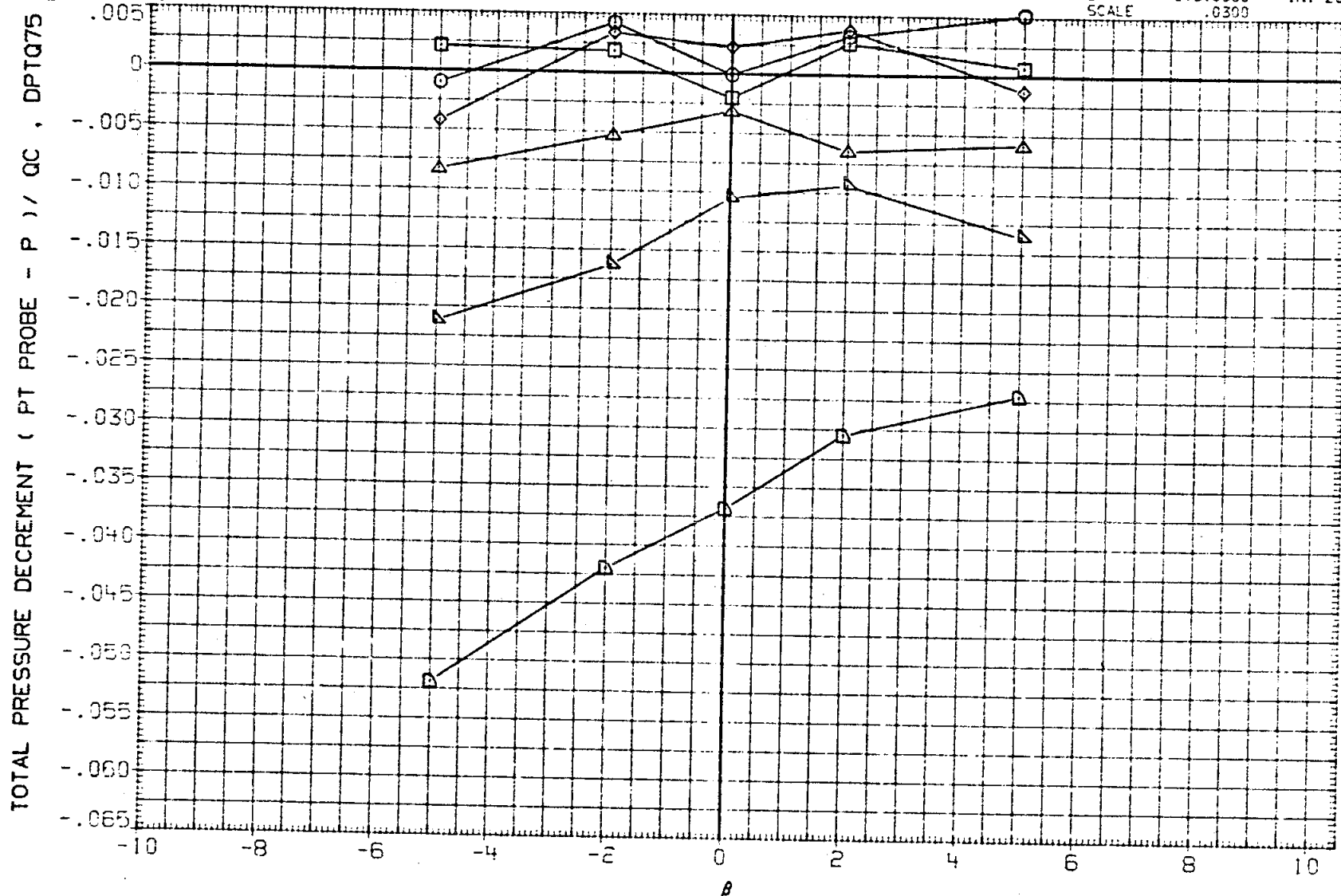
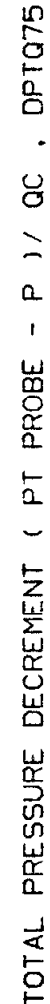


FIG. 31 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS



PAGE 652

(GE7C45) ARC 11-97-87-094 0A161 ORBITER + PROBES

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	ELEVON	BOFLAP	DATASET	BETA	DATASET	BETA	REFERENCE INFORMATION	SQ.FT.
□	.000			15.000		GE7C45	-5.000	GE7C45	-2.000	SREF	2690.0000
◇	8.000	AILRON	.300	-7.170		GE7C45	.000	GE7C45	2.000	LREF	474.8000
△	12.000		.000			GE7C47		GE7C48		BREF	936.6800
◇	16.000					GE7C49	5.000			XMRP	1076.6800
◇	20.000									YMRP	.0000
◇	24.000									ZMRP	375.0000
										SCALE	.0300

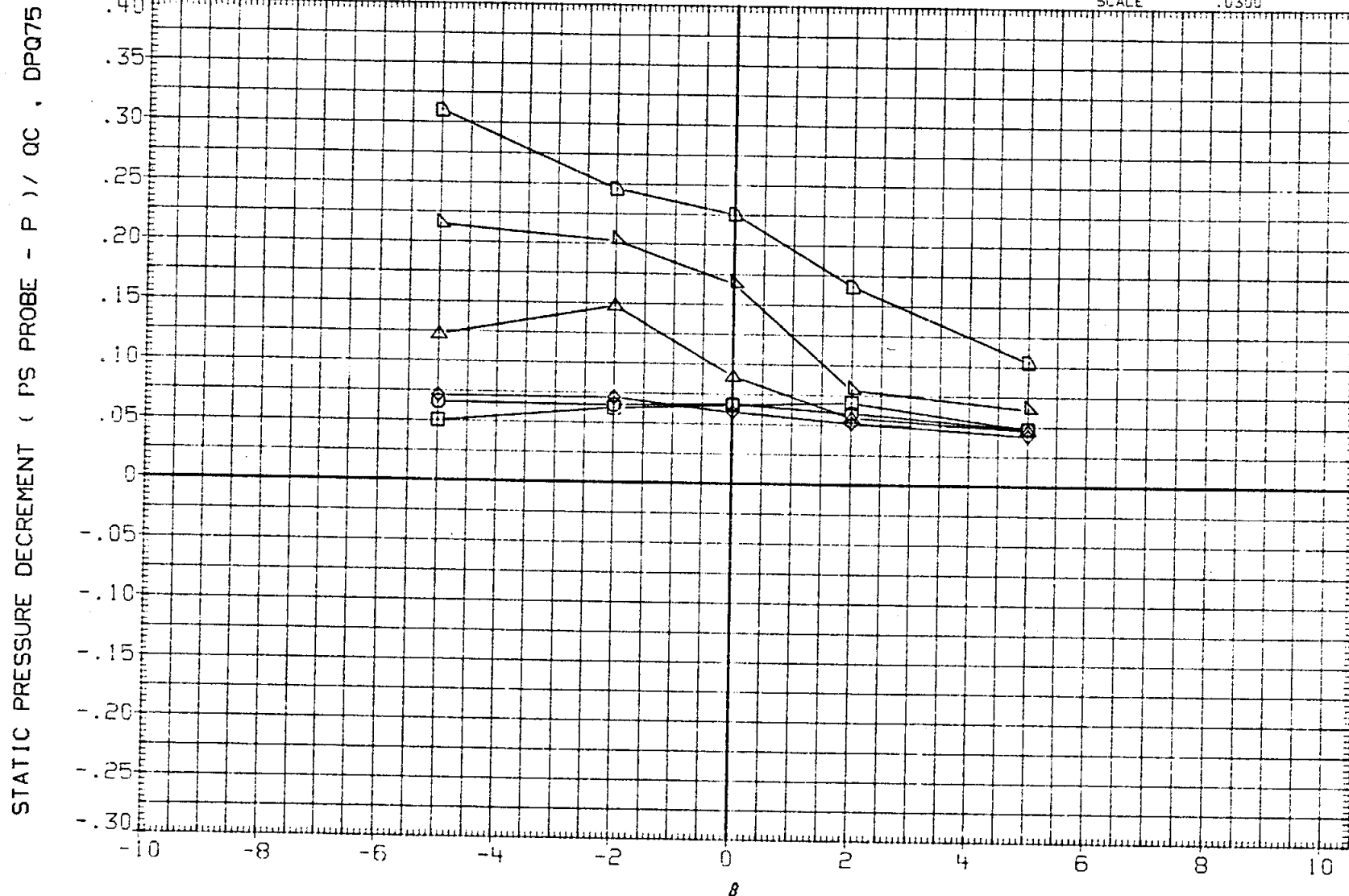


FIG. 31 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

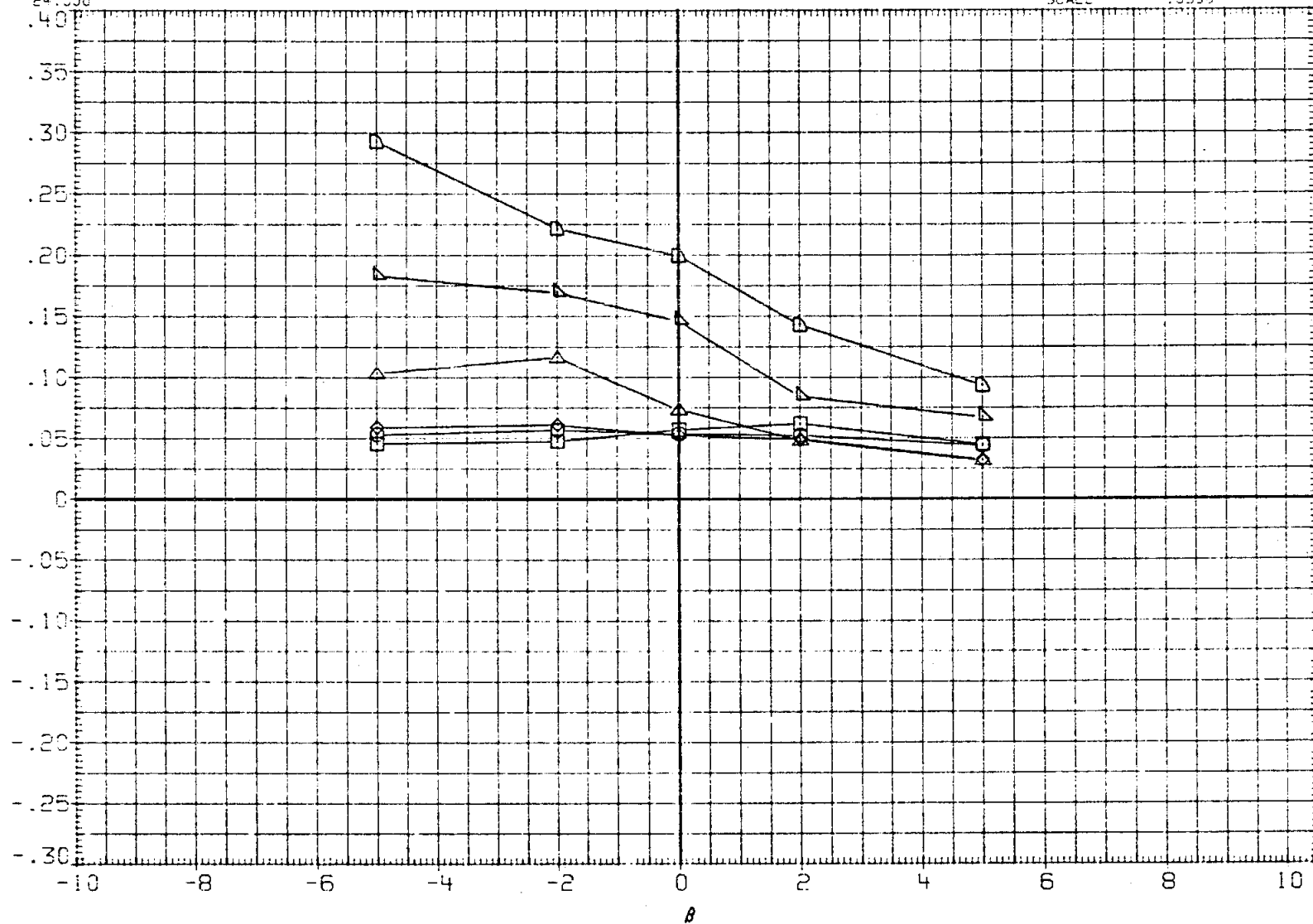
DATASET

BETA

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

STATIC PRESSURE DECREMENT ( PS PROBE - P ) / QC , DPQ75

FIG. 31 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA  
AT VARIOUS ALPHAS

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
GE7X45	○	ARC 11-97-87-094 OA161 ORBITER + PROBES	-5.000	15.000	.000	-7.170	SREF	2690.0000	50.FT.
GE7X46	◇	ARC 11-97-87-094 OA161 ORBITER + PROBES	-2.000	15.000	.000	-7.170	LREF	474.8000	IN.
GE7X47	□	ARC 11-97-87-094 OA161 ORBITER + PROBES	.000	15.000	.000	-7.170	BREF	935.6900	IN.
GE7X48	△	ARC 11-97-87-094 OA161 ORBITER + PROBES	2.000	15.000	.000	-7.170	XMPP	1075.6900	IN. XO
GE7X49	▽	ARC 11-97-87-094 OA161 ORBITER + PROBES	5.000	15.000	.000	-7.170	YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.0300	

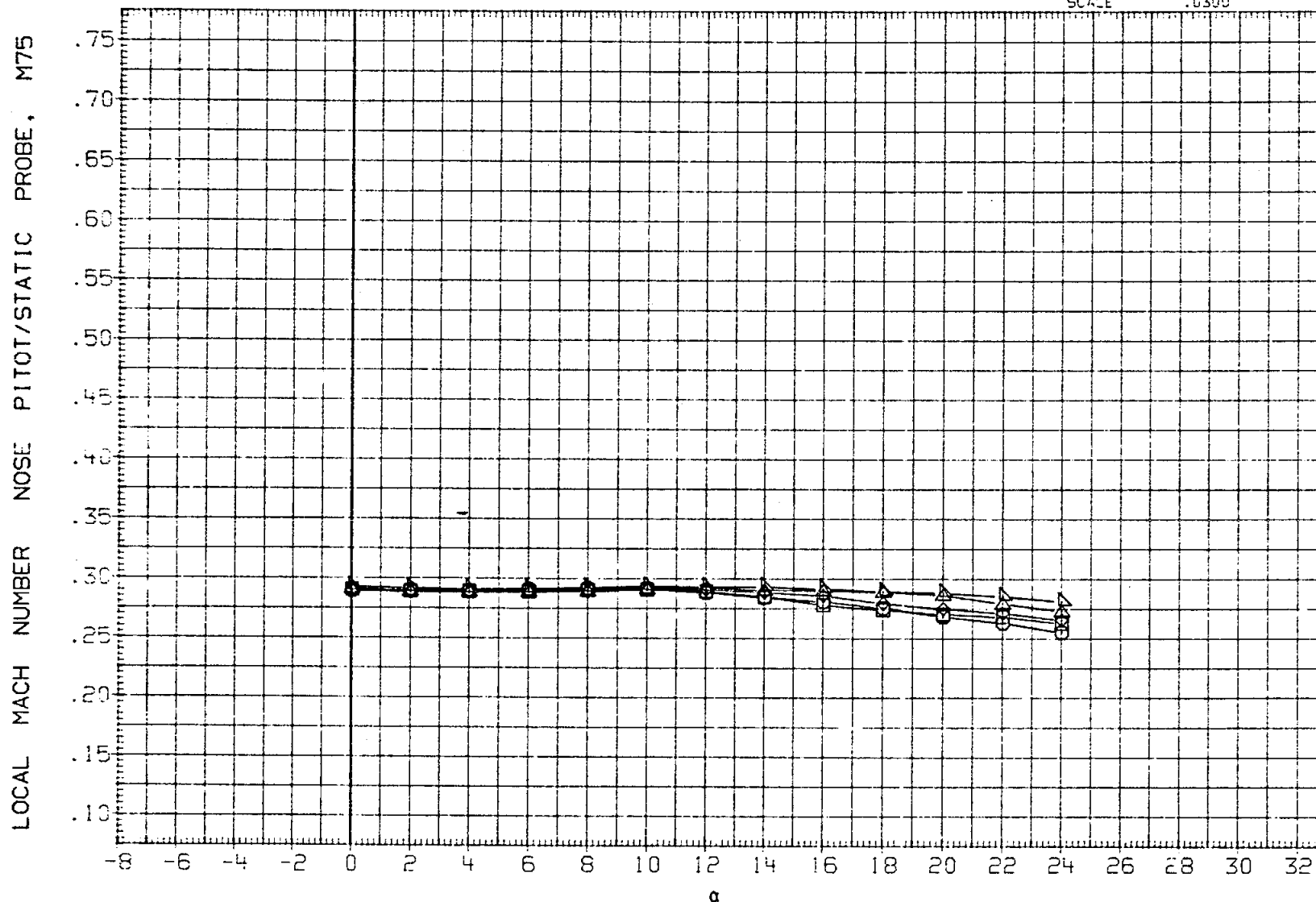


FIG. 32 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(A) MACH = .30

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILERON	BD FLAP	REFERENCE INFORMATION		
GETX45	ARC 11-97-87-094 OA161 ORBITER + PROBES	-5.000	15.000	.000	-7.170	SREF	2690.0000	SQ. FT.
GETX46	ARC 11-97-87-094 OA161 ORBITER + PROBES	-2.000	15.000	.000	-7.170	LREF	474.8000	IN.
GETX47	ARC 11-97-87-094 OA161 ORBITER + PROBES	.000	15.000	.000	-7.170	BREF	938.6800	IN.
GETX48	ARC 11-97-87-094 OA161 ORBITER + PROBES	2.000	15.000	.000	-7.170	XMRP	1076.6800	IN. XO
GETX49	ARC 11-97-87-094 OA161 ORBITER + PROBES	5.000	15.000	.000	-7.170	YMRP	.0000	IN. YO
						ZMRP	375.0000	IN. ZO
						SCALE	.0300	

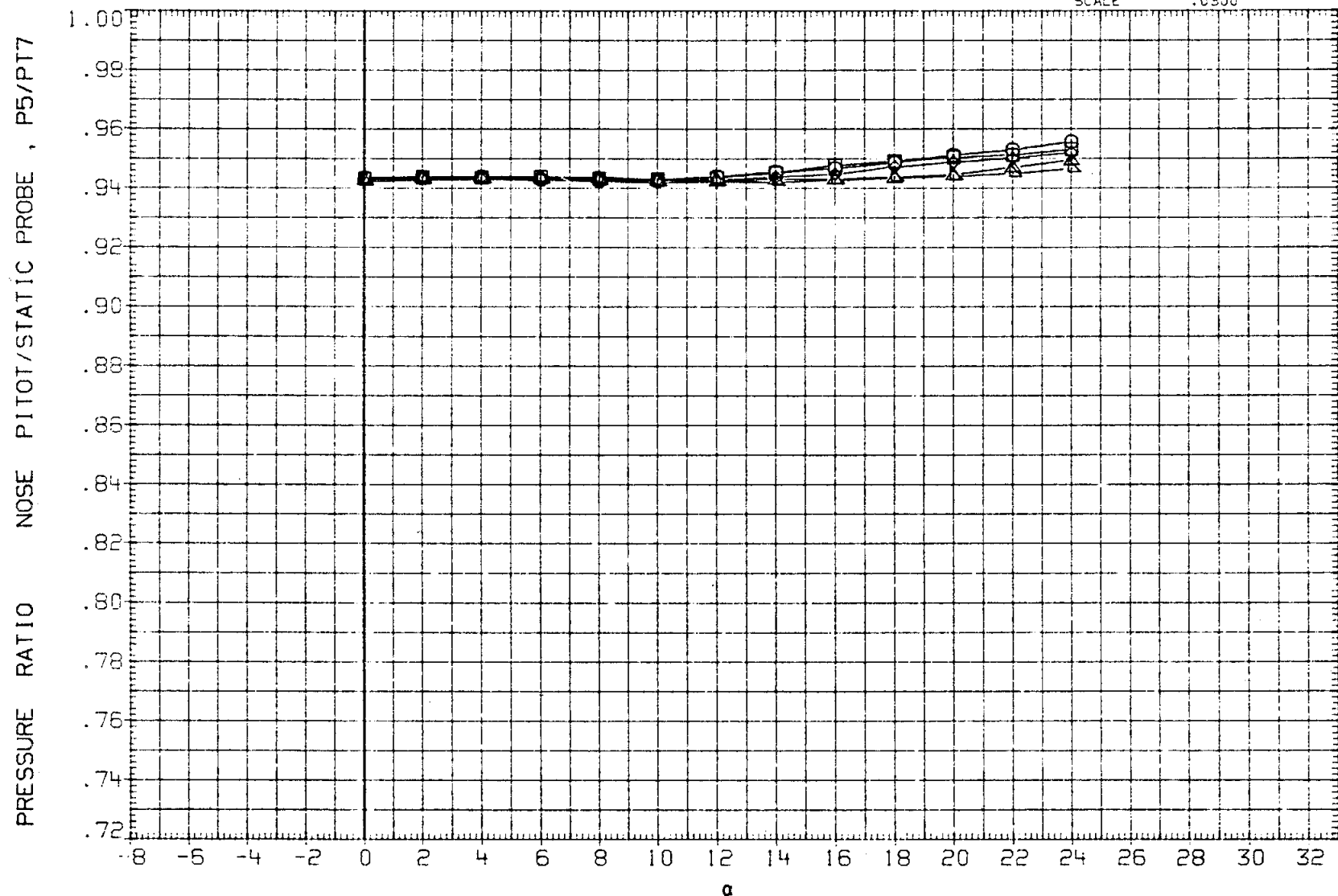


FIG. 32 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(A) MACH = .30

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BD-LAP	REFERENCE INFORMATION		
GE7X45	○	ARC 11-97-87-094 OA161 ORBITER + PROBES	-5.000	15.000	.000	-7.170	SREF	2690.0000	SQ. FT.
GE7X46	□	ARC 11-97-87-094 OA161 ORBITER + PROBES	-2.000	15.000	.000	-7.170	LREF	474.8000	IN.
GE7X47	◇	ARC 11-97-87-094 OA161 ORBITER + PROBES	.000	15.000	.000	-7.170	BREF	936.6800	IN.
GE7X48	△	ARC 11-97-87-094 OA161 ORBITER + PROBES	2.000	15.000	.000	-7.170	XMRP	1076.6800	IN. XO
GE7X49	▽	ARC 11-97-87-094 OA161 ORBITER + PROBES	5.000	15.000	.000	-7.170	YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

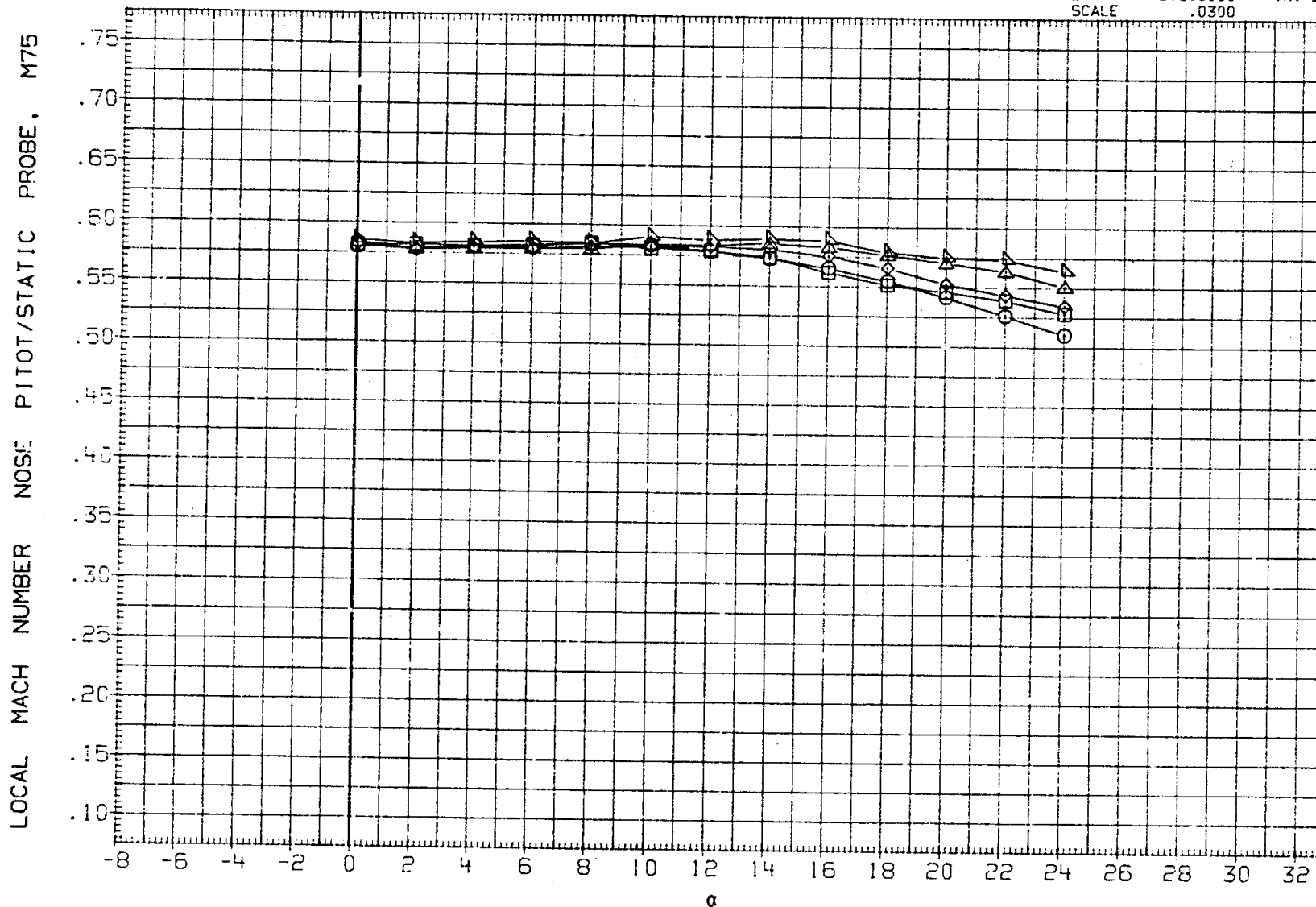


FIG. 32 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(B) MACH = .60

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
GE7X45	○	ARC 11-97-87-094 OA161 ORBITER + PROBES	-5.000	15.000	.000	-7.170	SREF	2690.0000	50. FT.
GE7X46	□	ARC 11-97-87-094 OA161 ORBITER + PROBES	-2.000	15.000	.000	-7.170	LREF	474.8000	IN.
GE7X47	◇	ARC 11-97-87-094 OA161 ORBITER + PROBES	.000	15.000	.000	-7.170	SREF	935.6000	IN.
GE7X48	△	ARC 11-97-87-094 OA161 ORBITER + PROBES	2.000	15.000	.000	-7.170	XMRP	1076.6600	IN. XO
GE7X49	▽	ARC 11-97-87-094 OA161 ORBITER + PROBES	5.000	15.000	.000	-7.170	YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

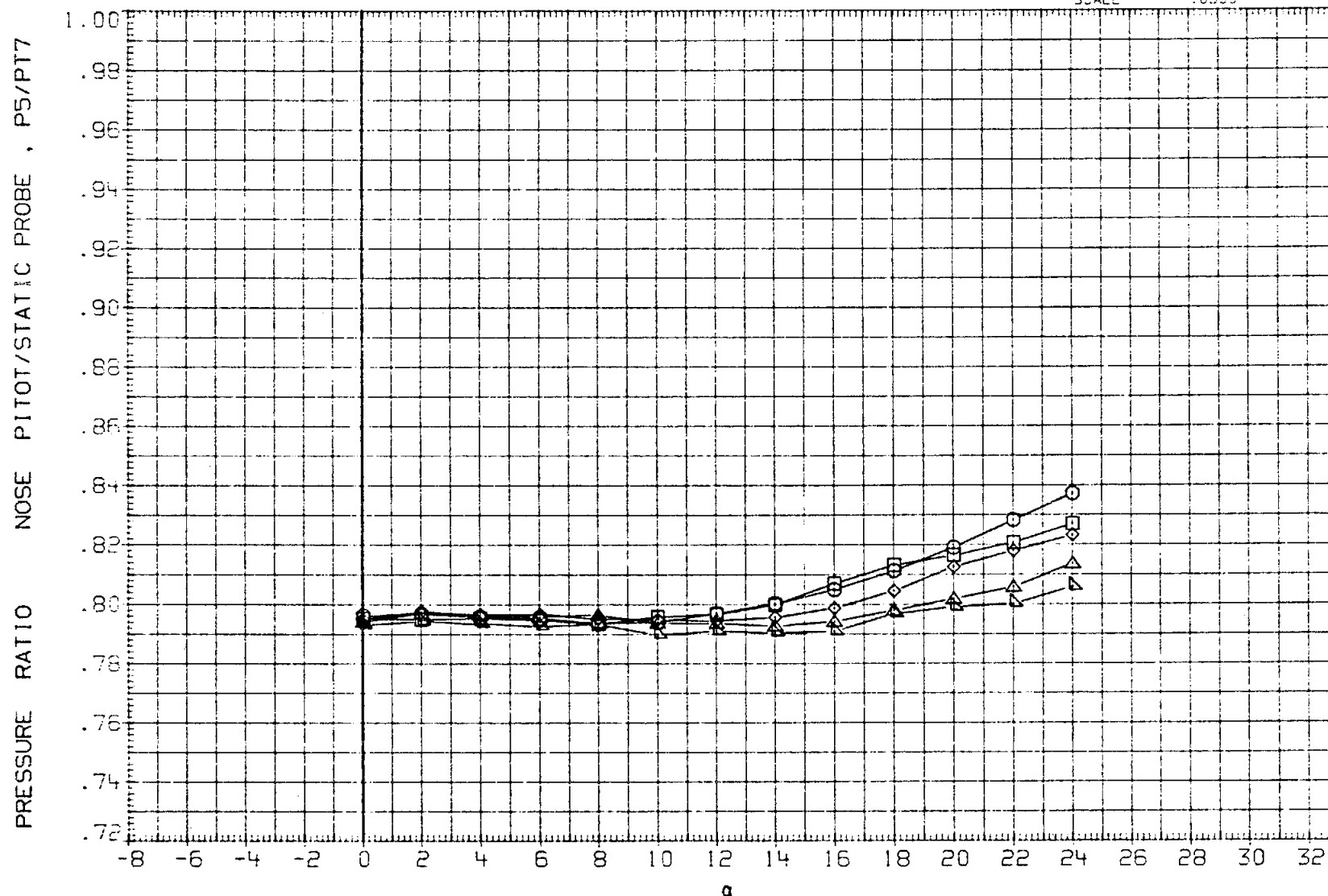


FIG. 32 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(B) MACH = .60



DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
GE7845	○	ARC 11-97-87-094 OA161 ORBITER + PROBES	-5.000	15.000	.000	-7.170	SREF	2690.0000	50.FT.
GE7846	□	ARC 11-97-87-094 OA161 ORBITER + PROBES	-2.000	15.000	.000	-7.170	LREF	474.8000	IN.
GE7847	△	ARC 11-97-87-094 OA161 ORBITER + PROBES	.000	15.000	.000	-7.170	BREF	935.6800	IN.
GE7848	◇	ARC 11-97-87-094 OA161 ORBITER + PROBES	2.000	15.000	.000	-7.170	XMRP	1076.6800	IN. XO
GE7849	▽	ARC 11-97-87-094 OA161 ORBITER + PROBES	5.000	15.000	.000	-7.170	YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

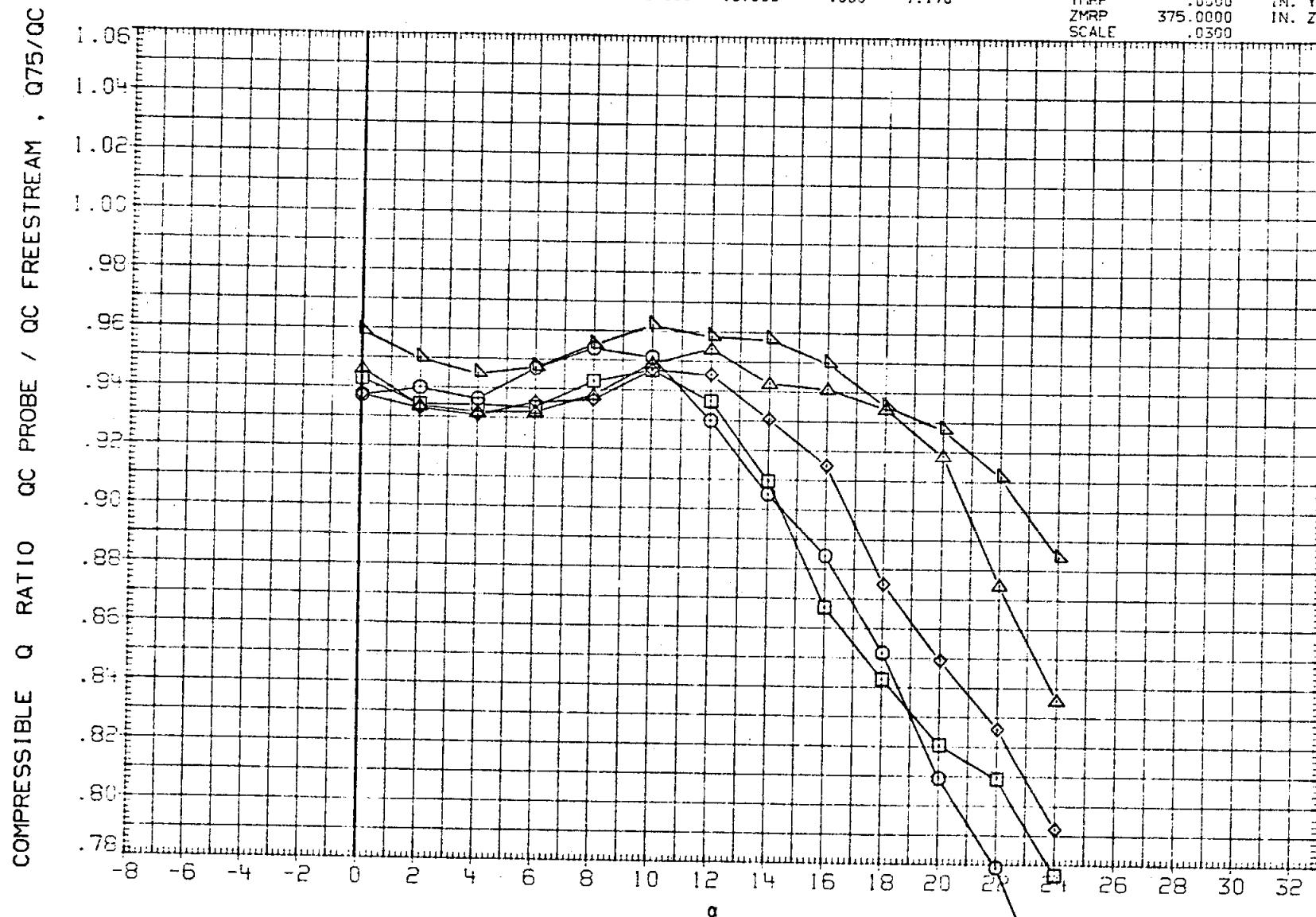


FIG. 32 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(A) MACH = .30

## DATA SET SYMBOL

## CONFIGURATION

## BETA

## ELEVON

## AILRON

## BDFLAP

## REFERENCE INFORMATION

GE7B45     $\square$     ARC 11-97-87-094 0A161 ORBITER \* PROBES  
 GE7B46     $\square$     ARC 11-97-87-094 0A161 ORBITER \* PROBES  
 GE7B47     $\diamond$     ARC 11-97-87-094 0A161 ORBITER \* PROBES  
 GE7B48     $\triangle$     ARC 11-97-87-094 0A161 ORBITER \* PROBES  
 GE7B49     $\triangle$     ARC 11-97-87-094 0A161 ORBITER \* PROBES

-5.000    15.000    .000    -7.170  
 -2.000    15.000    .000    -7.170  
 .000    15.000    .000    -7.170  
 2.000    15.000    .000    -7.170  
 5.000    15.000    .000    -7.170

SREF    2690.0000    50. FT.  
 LREF    474.8000    IN.  
 SREF    935.6800    IN.  
 XMRP    1076.6800    IN. XO  
 YMRP    .0000    IN. YO  
 ZMRP    375.0000    IN. ZO  
 SCALE    .0300

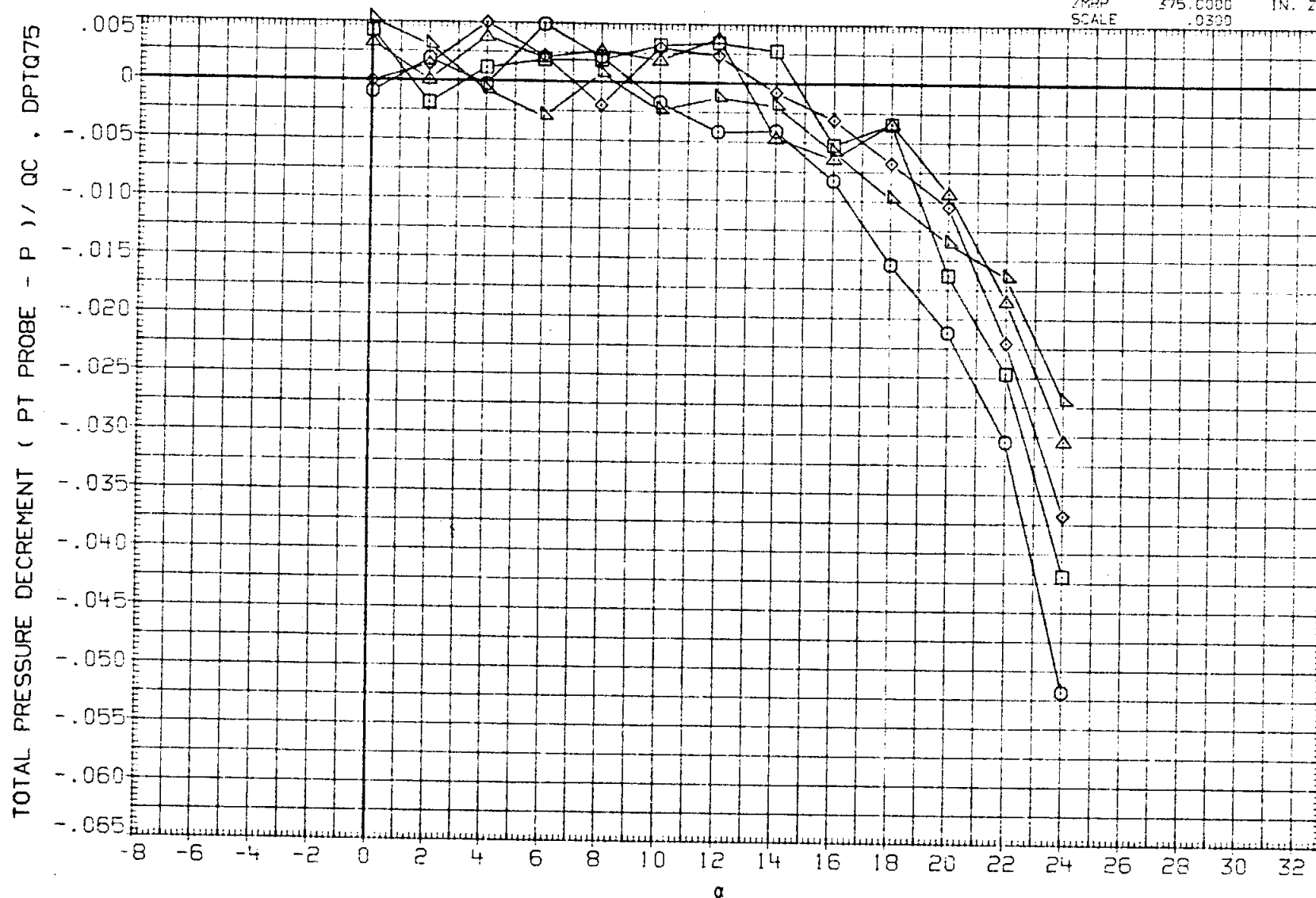


FIG. 32 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
 AT VARIOUS BETAS

(A) MACH = .30

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
GE7B45	○	ARC 11-97-87-094 OA161 ORBITER + PROBES	-5.000	15.000	.000	-7.170	SREF	2690.0000	50. FT.
GE7B46	◇	ARC 11-97-87-094 OA161 ORBITER + PROBES	-2.000	15.000	.000	-7.170	LREF	474.8000	IN.
GE7B47	△	ARC 11-97-87-094 OA161 ORBITER + PROBES	.000	15.000	.000	-7.170	BREF	936.6800	IN.
GE7B48	▽	ARC 11-97-87-094 OA161 ORBITER + PROBES	2.000	15.000	.000	-7.170	XMRP	1076.6800	IN. XO
GE7B49	△	ARC 11-97-87-094 OA161 ORBITER + PROBES	5.000	15.000	.000	-7.170	YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

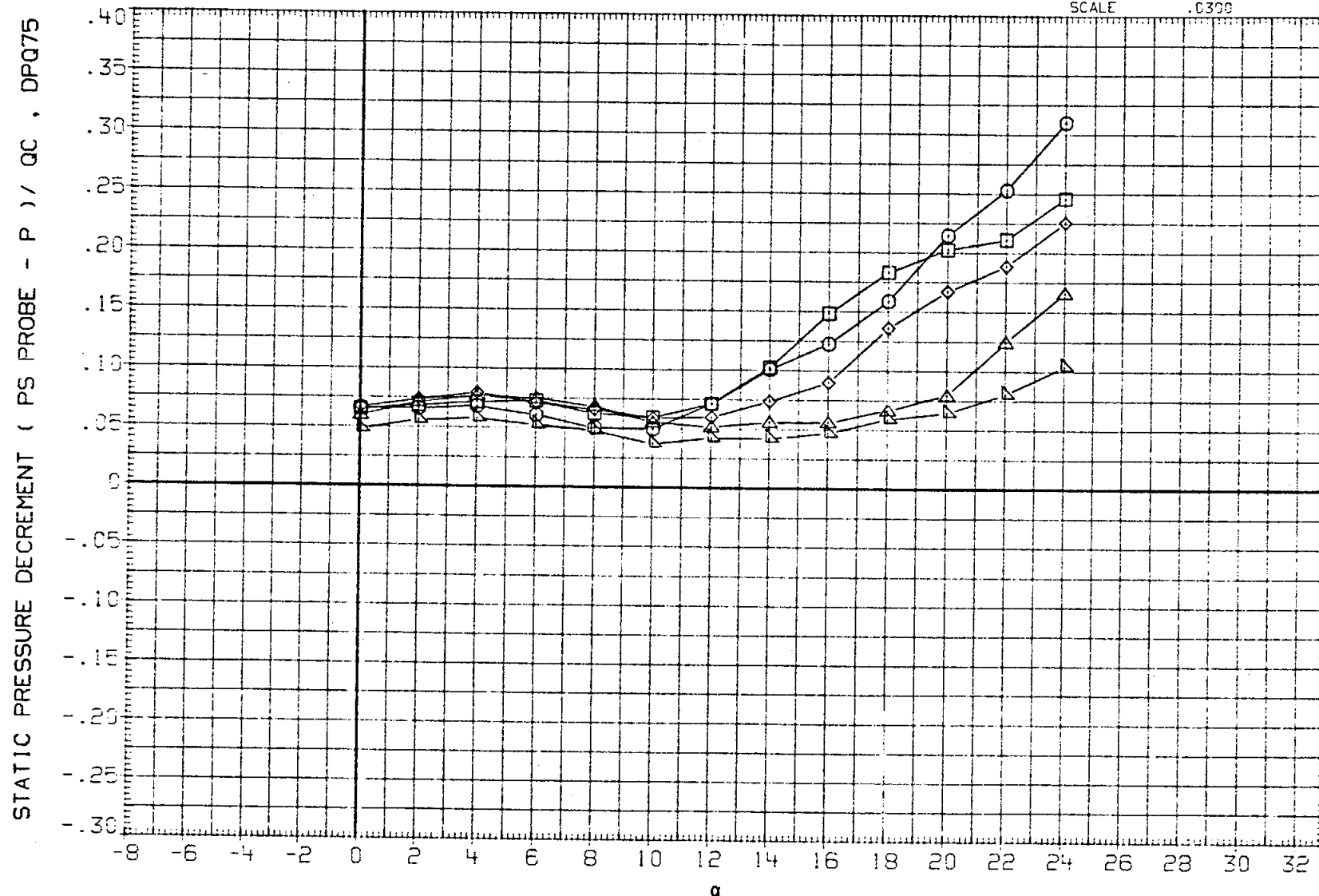


FIG. 32 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(A) MACH = .30

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BOFLAP

REFERENCE INFORMATION

GE7B45 ○ ARC 11-97-87-094 OA161 ORBITER + PROBES  
 GE7B46 □ ARC 11-97-87-094 OA161 ORBITER + PROBES  
 GE7B47 ◇ ARC 11-97-87-094 OA161 ORBITER + PROBES  
 GE7B48 △ ARC 11-97-87-094 OA161 ORBITER + PROBES  
 GE7B49 △ ARC 11-97-87-094 OA161 ORBITER + PROBES

-5.000 15.000 .000 -7.170  
 -2.000 15.000 .000 -7.170  
 .000 15.000 .000 -7.170  
 2.000 15.000 .000 -7.170  
 5.000 15.000 .000 -7.170

SREF 2690.0000 SQ. FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE 0300

COMPRESSIBLE Q RATIO QC PROBE / QC FREESTREAM , Q75/QC

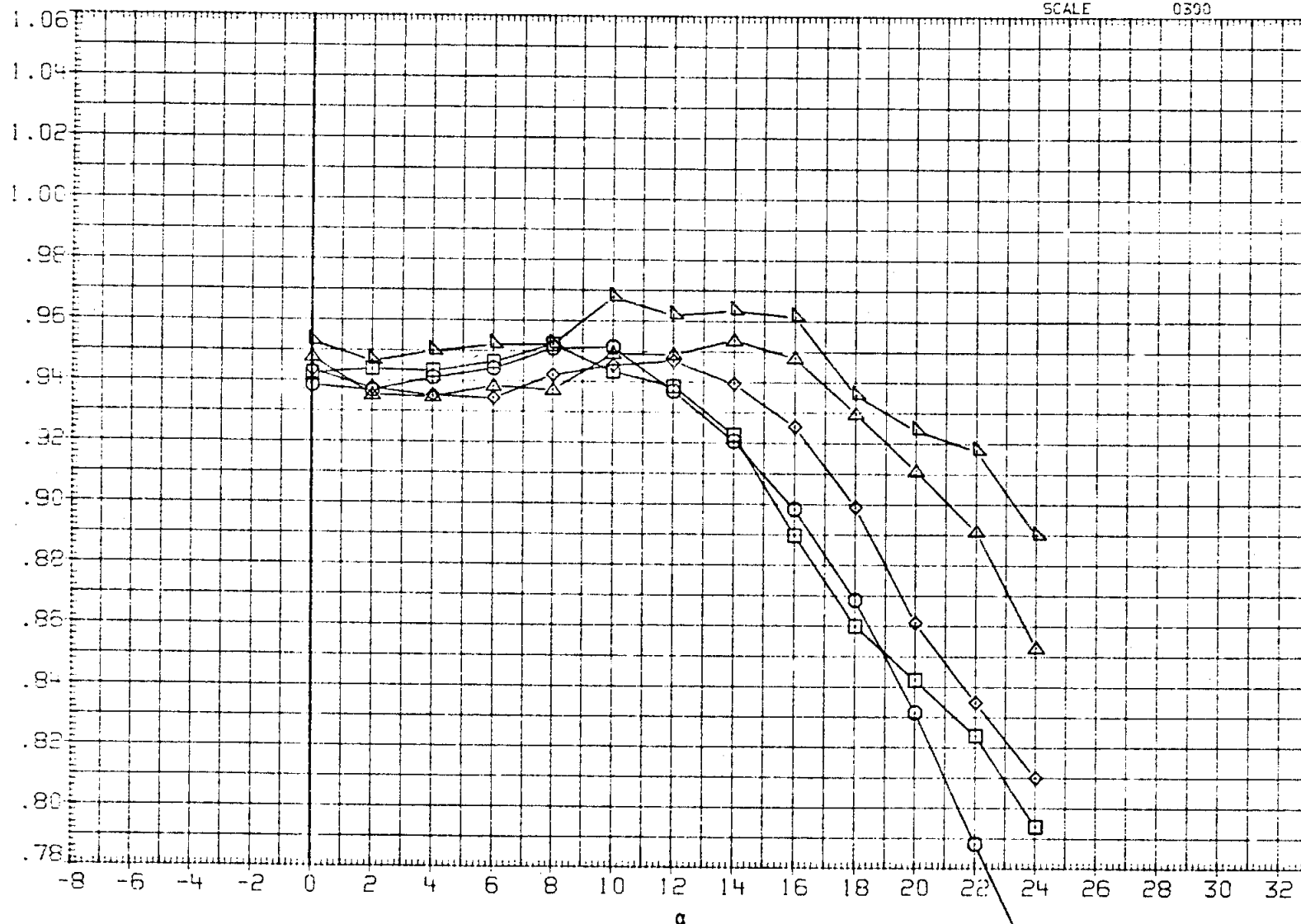


FIG. 32 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
 AT VARIOUS BETAS

(B) MACH = .60

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
GE7B45	○	ARC 11-97-87-094 OA161 ORBITER + PROBES	-5.000	15.000	.000	-7.170	SREF	2690.0000	SQ.FT.
GE7B46	□	ARC 11-97-87-094 OA161 ORBITER + PROBES	-2.000	15.000	.000	-7.170	LREF	474.8000	IN.
GE7B47	◇	ARC 11-97-87-094 OA161 ORBITER + PROBES	.000	15.000	.000	-7.170	BREF	936.6800	IN.
GE7B48	△	ARC 11-97-87-094 OA161 ORBITER + PROBES	2.000	15.000	.000	-7.170	XMRP	1076.6800	IN. XO
GE7B49	▽	ARC 11-97-87-094 OA161 ORBITER + PROBES	5.000	15.000	.000	-7.170	YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

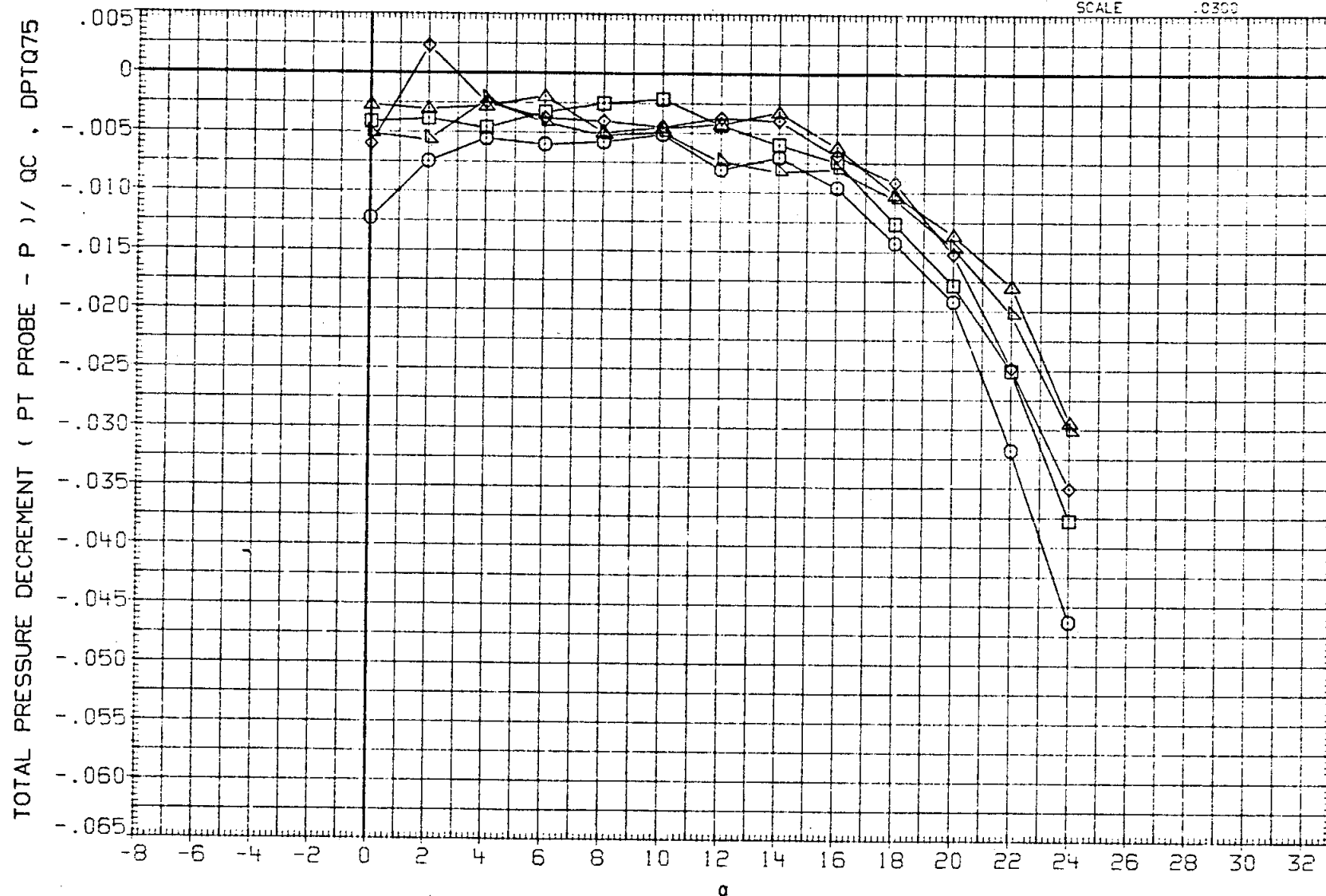


FIG. 32 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(B) MACH = .60

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BDFLAP

REFERENCE INFORMATION

GE7B45 ○ ARC 11-97-87-094 OA161 ORBITER + PROBES  
 GE7B46 □ ARC 11-97-87-094 OA161 ORBITER + PROBES  
 GE7B47 ◇ ARC 11-97-87-094 OA161 ORBITER + PROBES  
 GE7B48 △ ARC 11-97-87-094 OA161 ORBITER + PROBES  
 GE7B49 ▽ ARC 11-97-87-094 OA161 ORBITER + PROBES

-5.000 15.000 .000 -7.170  
 -2.000 15.000 .000 -7.170  
 .000 15.000 .000 -7.170  
 2.000 15.000 .000 -7.170  
 5.000 15.000 .000 -7.170

SREF 2690.0000 SQ.FT.  
 LREF 474.8000 IN.  
 BREF 936.6800 IN.  
 XMRP 1076.6800 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE .0300

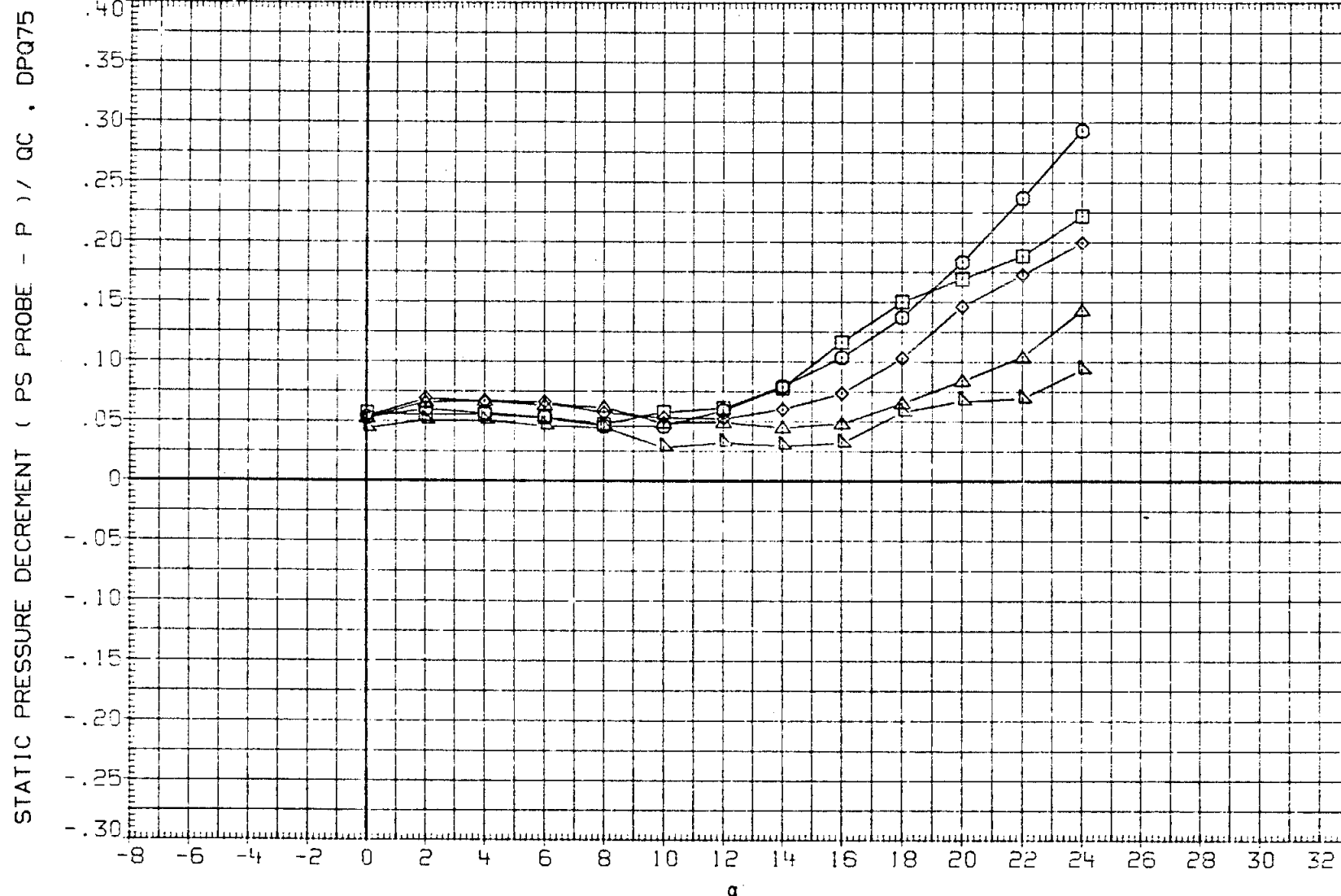


FIG. 32 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
 AT VARIOUS BETAS

(B) MACH = .60

PAGE 664

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
GE7X38	○	ARC 11-97-87-094 OA161 ORBITER + PROBES	-8.000	.000	.000	-7.170	SREF	2690.0000	50.FT.
GE7X39	□	ARC 11-97-87-094 OA161 ORBITER + PROBES	-5.000	.000	.000	-7.170	LREF	474.8000	IN.
GE7X40	◇	ARC 11-97-87-094 OA161 ORBITER + PROBES	-2.000	.000	.000	-7.170	BREF	935.6800	IN.
GE7X41	△	ARC 11-97-87-094 OA161 ORBITER + PROBES	.000	.000	.000	-7.170	XMRP	1076.6800	IN. XO
GE7X43	▽	ARC 11-97-87-094 OA161 ORBITER + PROBES	5.000	.000	.000	-7.170	YMRP	.0000	IN. YO
GE7X44	◇	ARC 11-97-87-094 OA161 ORBITER + PROBES	8.000	.000	.000	-7.170	ZMRP	375.0000	IN. ZO
							SCALE	.0300	

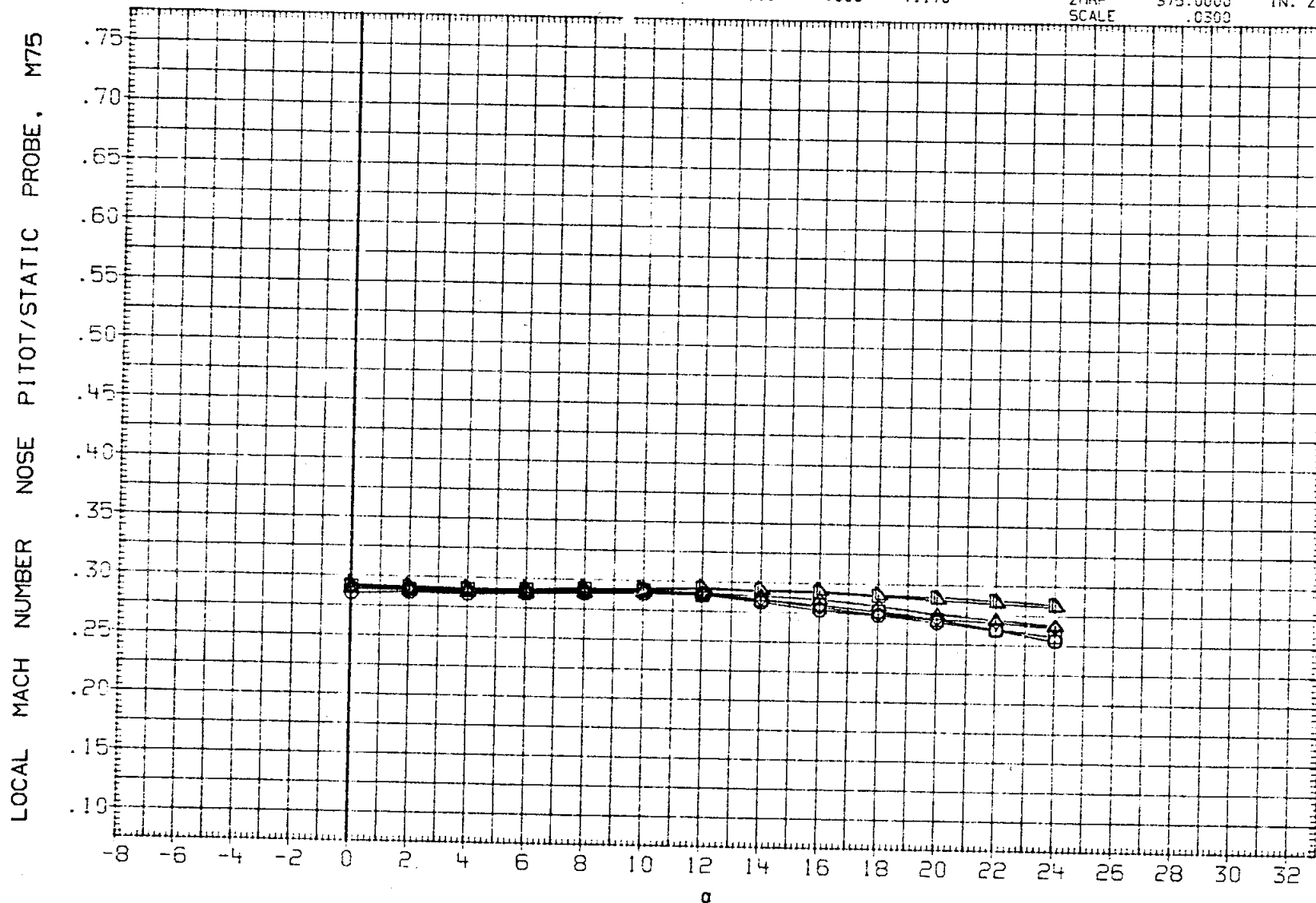


FIG. 32 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(A) MACH = .30

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
GETX38	ARC 11-97-87-094 OA161 ORBITER + PROBES	-8.000	.000	.000	-7.170	SREF	2590.0000	SQ. FT.
GETX39	ARC 11-97-87-094 OA161 ORBITER + PROBES	-5.000	.000	.000	-7.170	LREF	474.8000	IN.
GETX40	ARC 11-97-87-094 OA161 ORBITER + PROBES	-2.000	.000	.000	-7.170	BREF	936.6800	IN.
GETX41	ARC 11-97-87-094 OA161 ORBITER + PROBES	.000	.000	.000	-7.170	XMRP	1076.6800	IN. XO
GETX43	ARC 11-97-87-094 OA161 ORBITER + PROBES	5.000	.000	.000	-7.170	YMRP	.0000	IN. YO
GETX44	ARC 11-97-87-094 OA161 ORBITER + PROBES	8.000	.000	.000	-7.170	ZMRP	375.0000	IN. ZO
						SCALE	.0000	

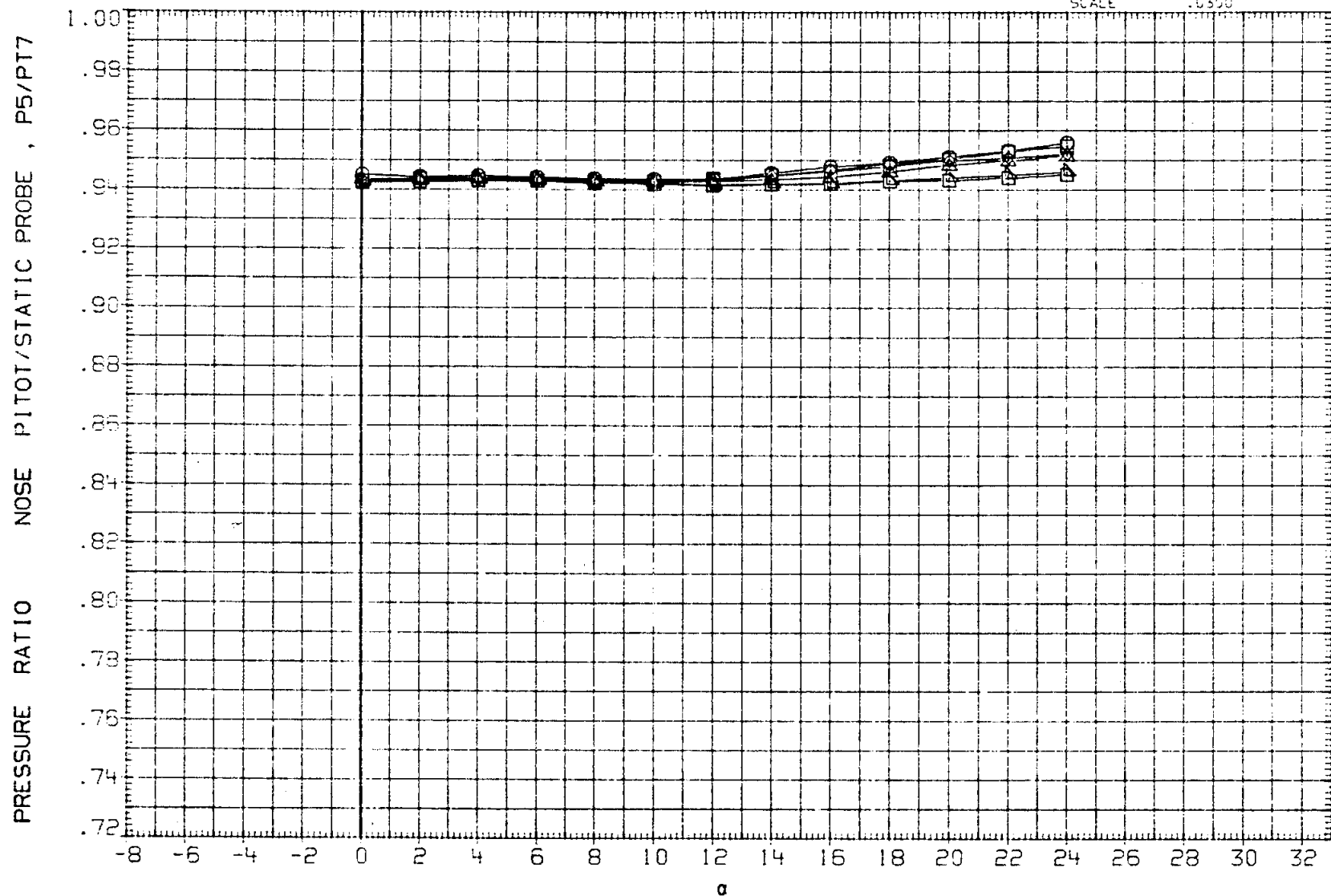
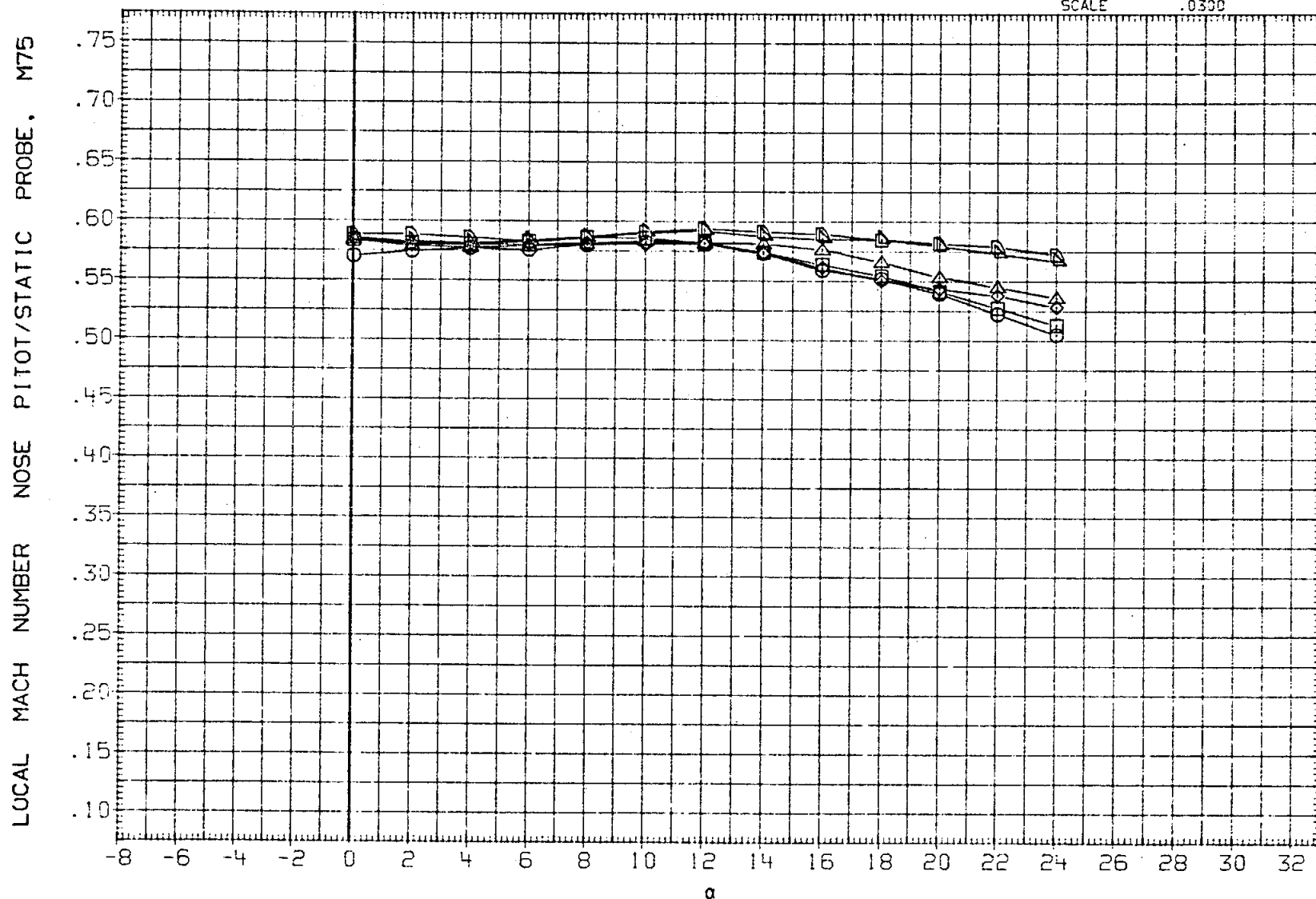


FIG. 32 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(A) MACH = .30



DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION		
GE7X38	○	ARC 11-97-87-094 OA161 ORBITER + PROBES	-8.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
GE7X39	□	ARC 11-97-87-094 OA161 ORBITER + PROBES	-5.000	.000	.000	-7.170	LREF	474.8000	IN.
GE7X40	◇	ARC 11-97-87-094 OA161 ORBITER + PROBES	-2.000	.000	.000	-7.170	SREF	936.6800	IN.
GE7X41	△	ARC 11-97-87-094 OA161 ORBITER + PROBES	.000	.000	.000	-7.170	XMRP	1076.6800	IN. XO
GE7X43	▽	ARC 11-97-87-094 OA161 ORBITER + PROBES	5.000	.000	.000	-7.170	YMRP	.0000	IN. YO
GE7X44	▷	ARC 11-97-87-094 OA161 ORBITER + PROBES	8.000	.000	.000	-7.170	ZMRP	375.0000	IN. ZO
							SCALE	.0330	



DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
GE7X38	ARC 11-97-87-094 OA161 ORBITER + PROBES	-8.000	.000	.000	-7.170	SREF	2690.0000	SC.FT.
GE7X39	ARC 11-97-87-094 OA161 ORBITER + PROBES	-5.000	.000	.000	-7.170	LREF	474.8000	IN.
GE7X40	ARC 11-97-87-094 OA161 ORBITER + PROBES	-2.000	.000	.000	-7.170	BREF	936.6800	IN.
GE7X41	ARC 11-97-87-094 OA161 ORBITER + PROBES	.000	.000	.000	-7.170	XMRP	1076.6800	IN. XO
GE7X43	ARC 11-97-87-094 OA161 ORBITER + PROBES	5.000	.000	.000	-7.170	YMRP	.0000	IN. YO
GE7X44	ARC 11-97-87-094 OA161 ORBITER + PROBES	8.000	.000	.000	-7.170	ZMRP	375.0000	IN. ZO
						SCALE	.0300	

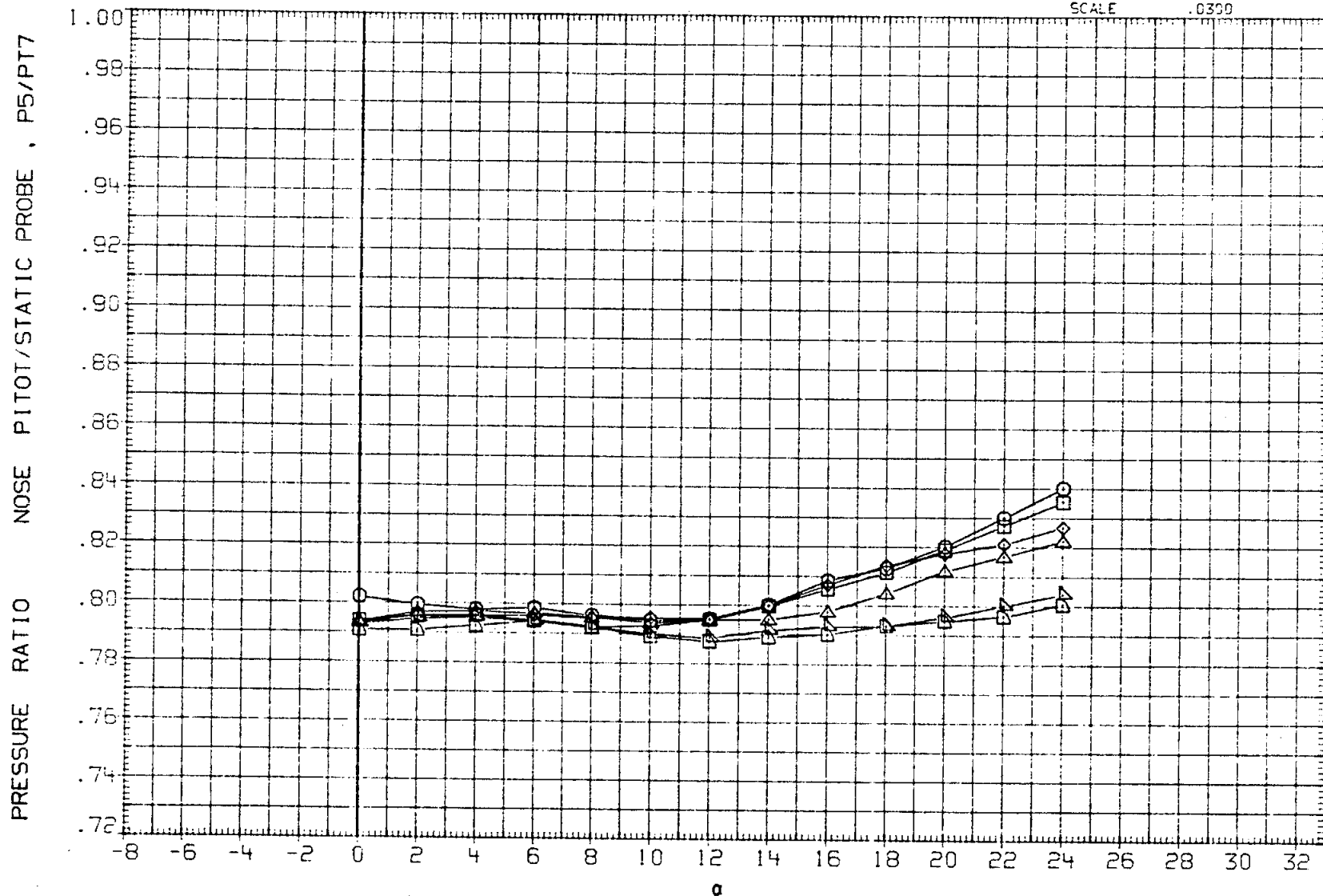


FIG. 32 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(B) MACH = .60

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
GE7838	○	ARC 11-97-87-094 OA161 ORBITER + PROBES	-8.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
GE7839	□	ARC 11-97-87-094 OA161 ORBITER + PROBES	-5.000	.000	.000	-7.170	LREF	474.8000	IN.
GE7840	◇	ARC 11-97-87-094 OA161 ORBITER + PROBES	-2.000	.000	.000	-7.170	BREF	935.6800	IN.
GE7841	△	ARC 11-97-87-094 OA161 ORBITER + PROBES	.000	.000	.000	-7.170	XMRP	1076.6800	IN. XO
GE7843	▽	ARC 11-97-87-094 OA161 ORBITER + PROBES	5.000	.000	.000	-7.170	YMRP	.0000	IN. YO
GE7844	◻	ARC 11-97-87-094 OA161 ORBITER + PROBES	8.000	.000	.000	-7.170	ZMRP	375.0000	IN. ZO
							SCALE	.0300	

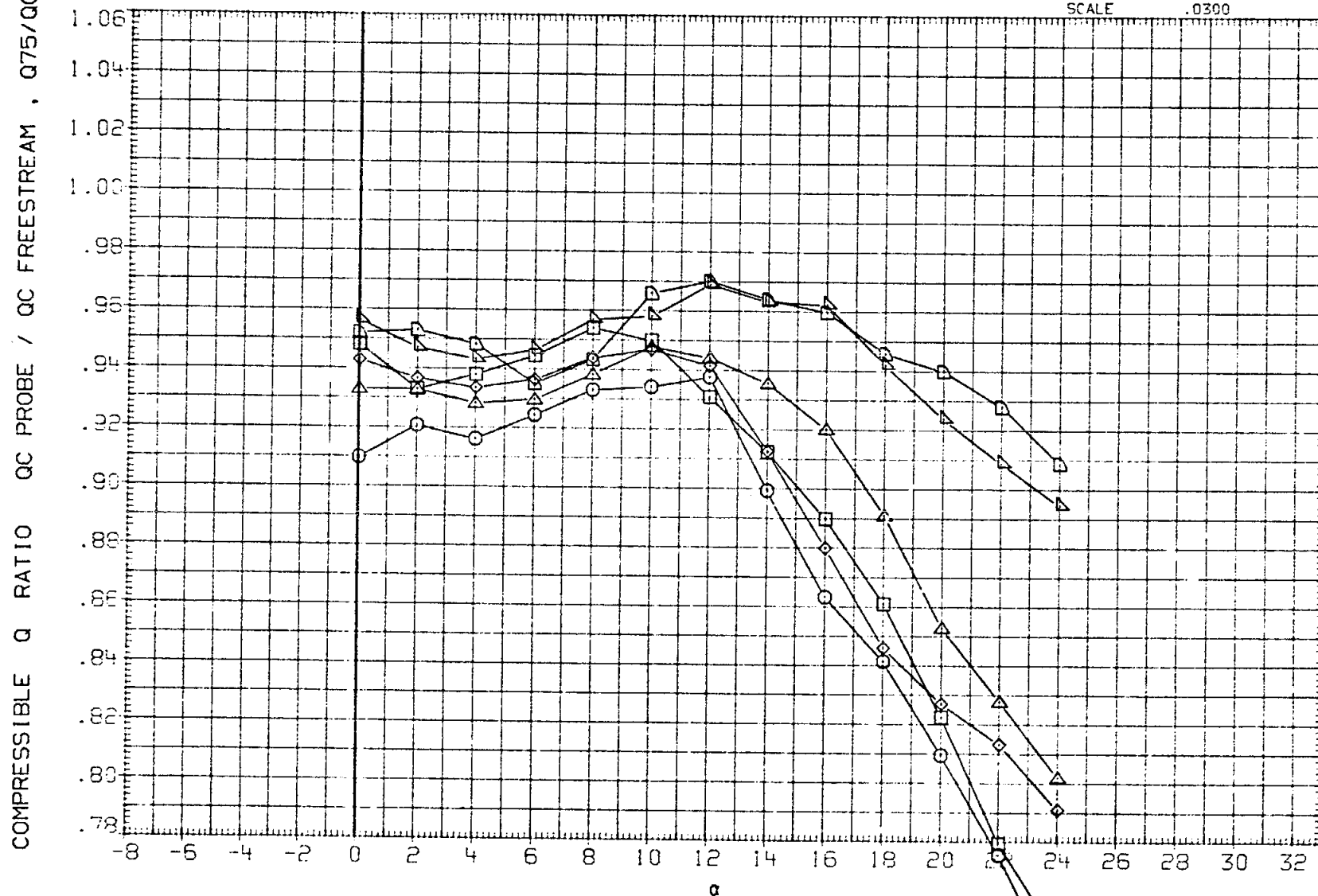


FIG. 32 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(A) MACH = .30

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	ATLRON	SDSLAP	REFERENCE INFORMATION		
GE7B38	ARC 11-97-87-094 OA161 ORBITER + PROBES	-8.000	.000	.000	-7.170	SREF	2690.0000	EQ. FT.
GE7B39	ARC 11-97-87-094 OA161 ORBITER + PROBES	-5.000	.000	.000	-7.170	LREF	474.8000	IN.
GE7B40	ARC 11-97-87-094 OA161 ORBITER + PROBES	-2.000	.000	.000	-7.170	BREF	935.6000	IN.
GE7B41	ARC 11-97-87-094 OA161 ORBITER + PROBES	.000	.000	.000	-7.170	XMRP	1075.0000	IN. XO
GE7B43	ARC 11-97-87-094 OA161 ORBITER + PROBES	5.000	.000	.000	-7.170	VMRP	1100.0000	IN. XO
GE7B44	ARC 11-97-87-094 OA161 ORBITER + PROBES	8.000	.000	.000	-7.170	ZMRP	375.0000	IN. ZO
						SCALE	.0000	

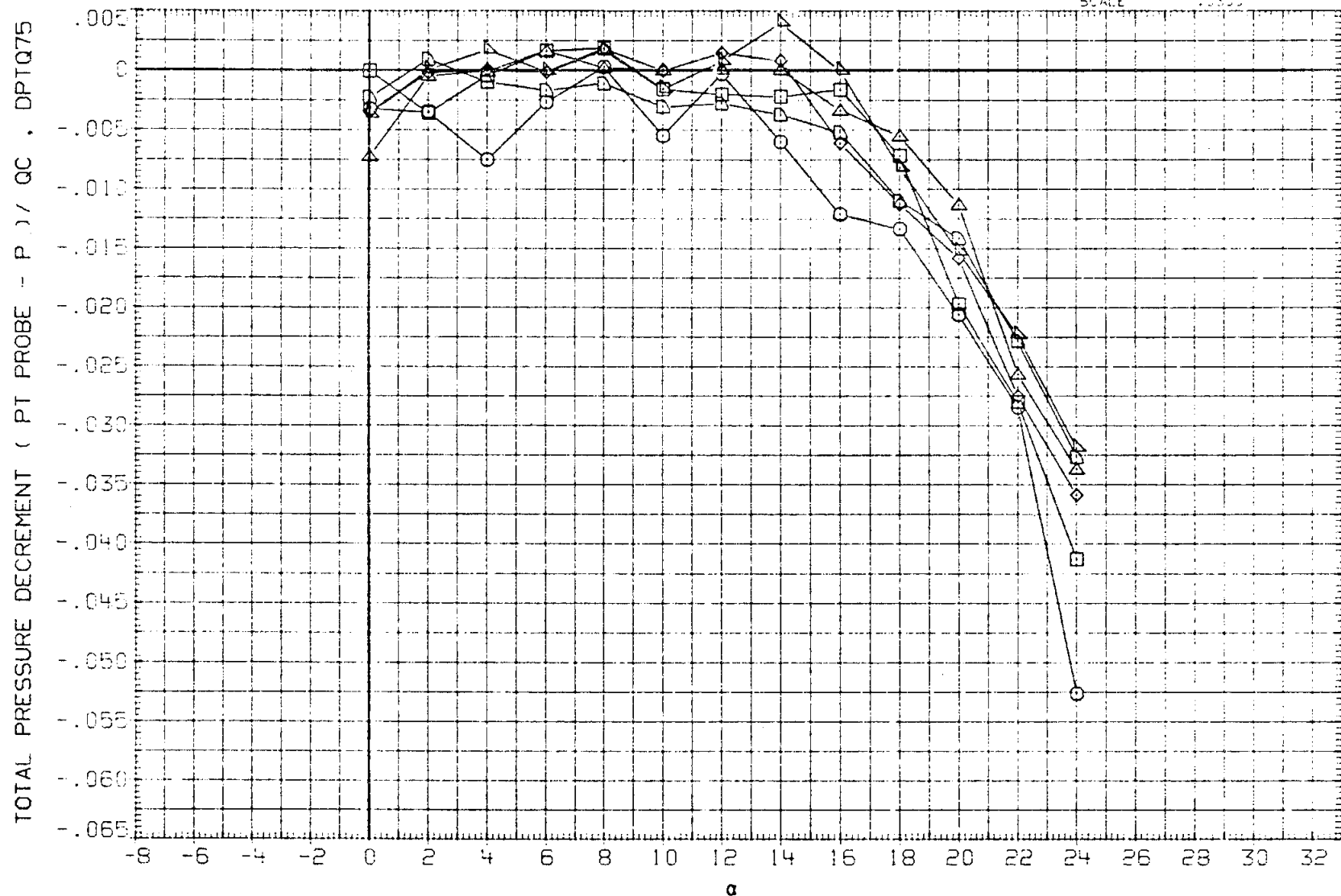


FIG. 32 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(A) MACH = .30

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
GE7B38	○	ARC 11-97-87-094 OA161 ORBITER + PROBES	-8.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
GE7B39	□	ARC 11-97-87-094 OA161 ORBITER + PROBES	-5.000	.000	.000	-7.170	LREF	474.8000	IN.
GE7B40	◇	ARC 11-97-87-094 OA161 ORBITER + PROBES	-2.000	.000	.000	-7.170	BREF	936.6800	IN.
GE7B41	△	ARC 11-97-87-094 OA161 ORBITER + PROBES	.000	.000	.000	-7.170	XMRP	1076.6800	IN. XO
GE7B43	▽	ARC 11-97-87-094 OA161 ORBITER + PROBES	5.000	.000	.000	-7.170	YMRP	.0000	IN. YO
GE7B44	◇	ARC 11-97-87-094 OA161 ORBITER + PROBES	8.000	.000	.000	-7.170	ZMRP	375.0000	IN. ZO
							SCALE	.0300	

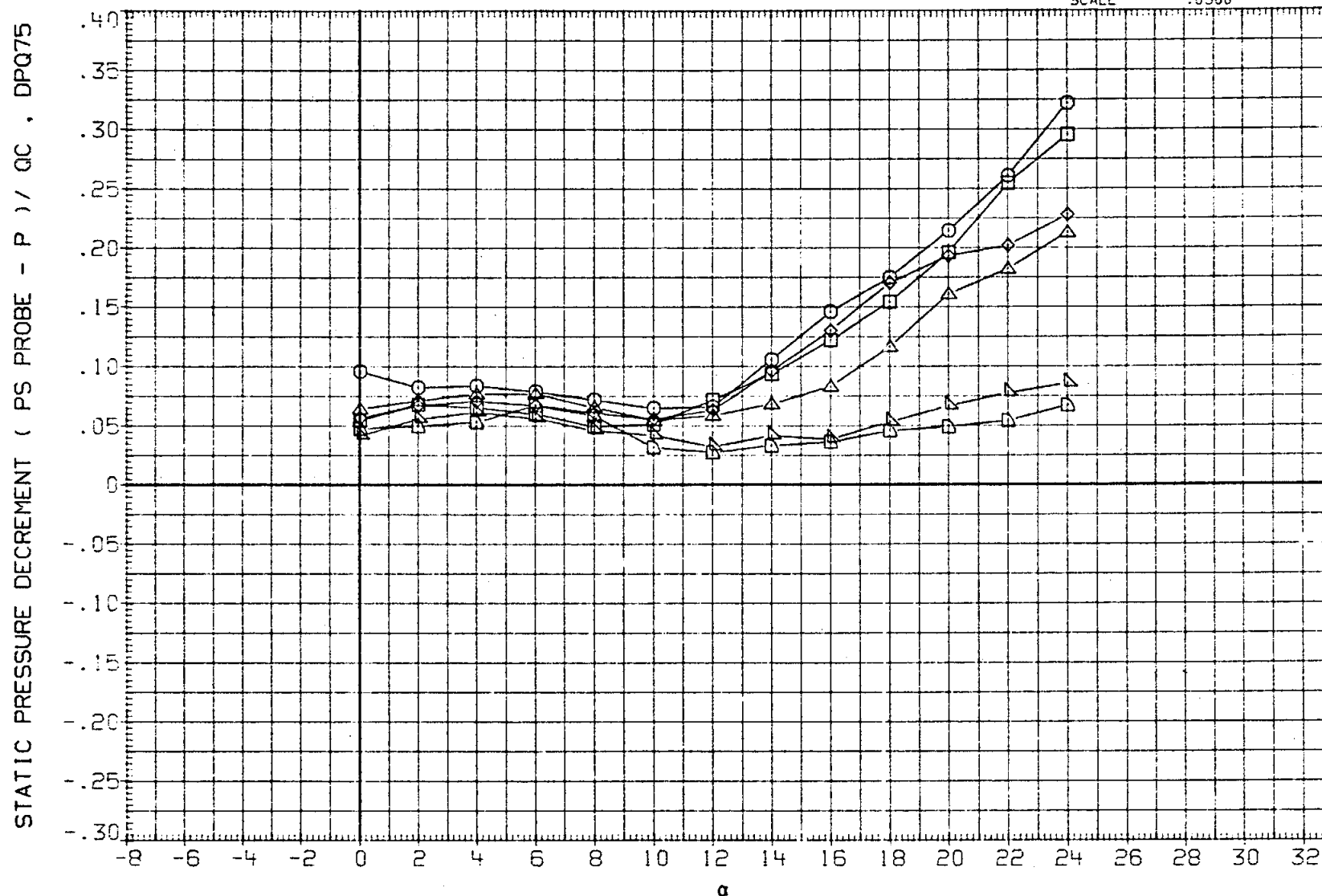


FIG. 32 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(A) MACH = .30

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BDFLAP

REFERENCE INFORMATION

01-7938  
01-7938  
01-7938  
01-7938  
01-7938  
01-7938

ARC 11-97-87-094 OA161 ORBITER + PROBES  
ARC 11-97-87-094 OA161 ORBITER + PROBES  
ARC 11-97-87-094 OA161 ORBITER + PROBES  
ARC 11-97-87-094 OA161 ORBITER + PROBES  
ARC 11-97-87-094 OA161 ORBITER + PROBES  
ARC 11-97-87-094 OA161 ORBITER + PROBES

-8.000 .000 .000 -7.170  
-5.000 .000 .000 -7.170  
-2.000 .000 .000 -7.170  
.000 .000 .000 -7.170  
5.000 .000 .000 -7.170  
8.000 .000 .000 -7.170

SREF 2690.0000 SQ. FT.  
LREF 474.8000 IN.  
BREF 935.6800 IN.  
XMRP 1075.5800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

COMPRESSIBLE Q RATIO QC PROBE / QC FREESTREAM . Q75/QC

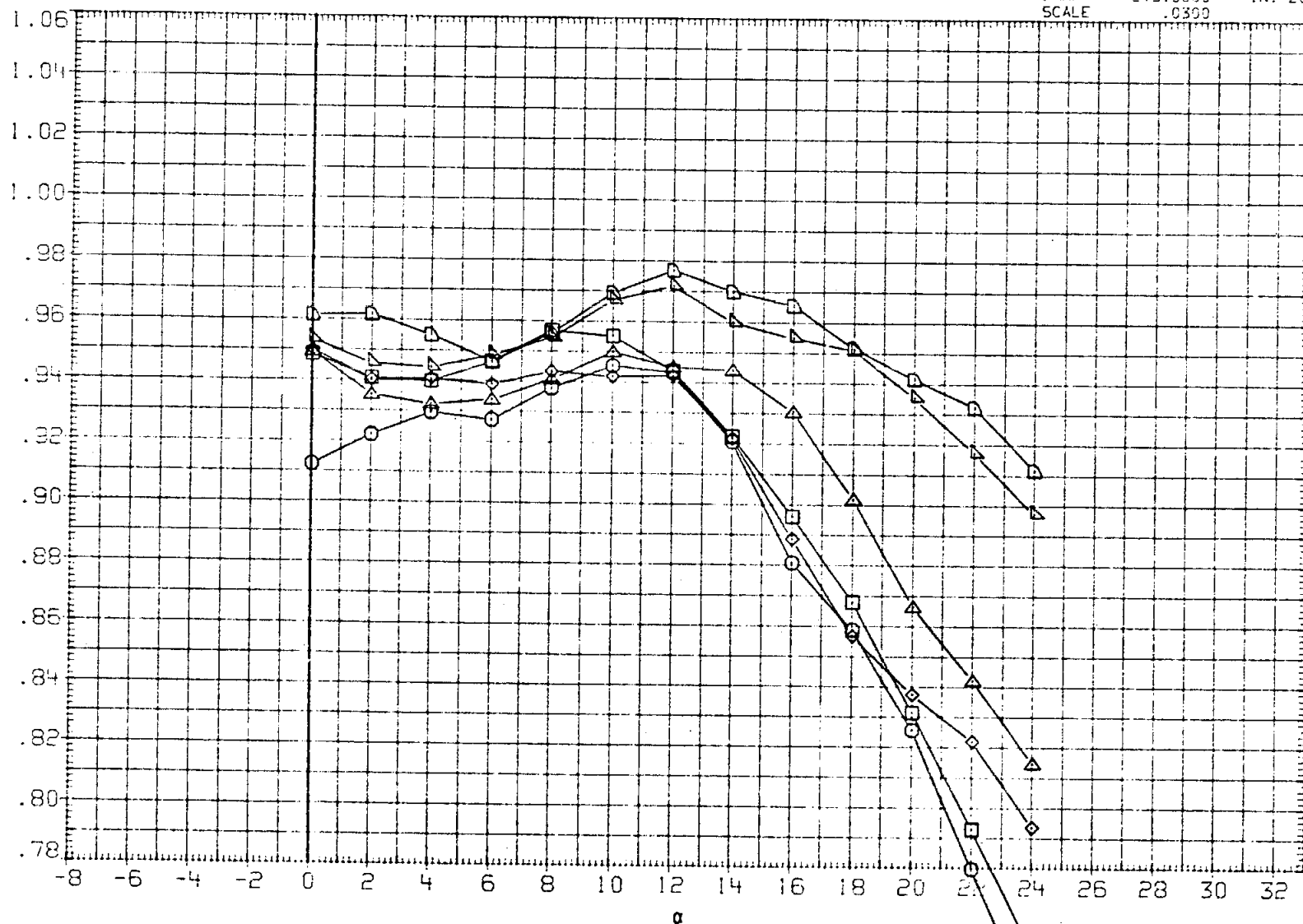


FIG. 32 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(B) MACH = .60

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
GE7838	○	ARC 11-97-87-09+ OA161 ORBITER + PROBES	-8.000	.000	.000	-7.170	SREF	2690.0000	SC.FT.
GE7839	◇	ARC 11-97-87-09+ OA161 ORBITER + PROBES	-5.000	.000	.000	-7.170	LREF	474.8000	IN.
GE7840	□	ARC 11-97-87-09+ OA161 ORBITER + PROBES	-2.000	.000	.000	-7.170	BREF	936.6800	IN.
GE7841	△	ARC 11-97-87-09+ OA161 ORBITER + PROBES	.000	.000	.000	-7.170	XMPP	1076.6800	IN. XO
GE7843	▽	ARC 11-97-87-09+ OA161 ORBITER + PROBES	5.000	.000	.000	-7.170	YMPP	.0000	IN. YO
GE7844	◇	ARC 11-97-87-09+ OA161 ORBITER + PROBES	8.000	.000	.000	-7.170	ZMPP	375.0000	IN. ZO
							SCALE	.0300	

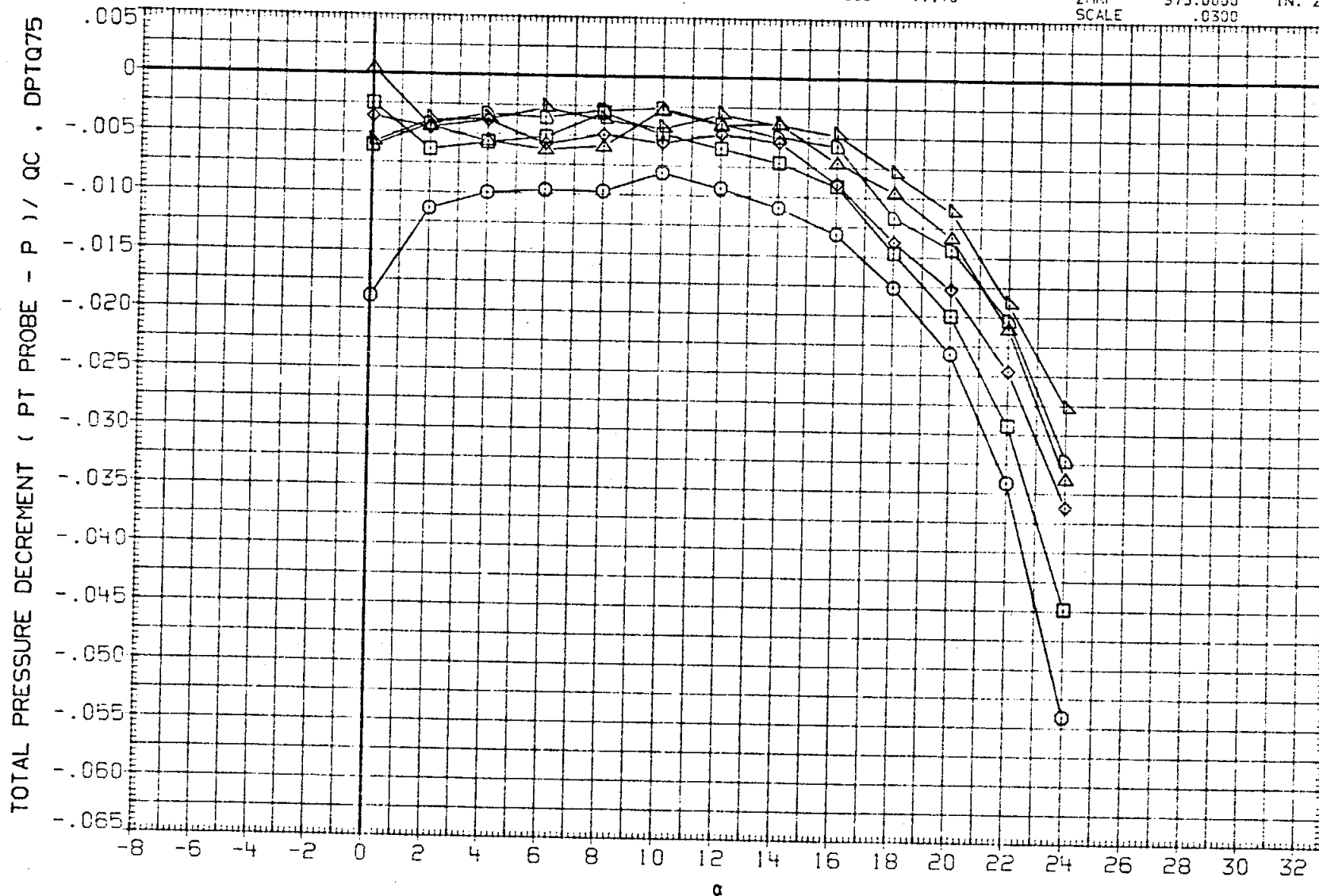


FIG. 32 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(B) MACH = .60

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BOLAP	REFERENCE INFORMATION		
GE7B38	○	ARC 11-97-87-094 OA161 ORBITER + PROBES	-8.000	.000	.000	-7.170	SREF	2590.0000	50. FT.
GE7B39	□	ARC 11-97-87-094 OA161 ORBITER + PROBES	-5.000	.000	.000	-7.170	LREF	474.8000	IN.
GE7B40	◇	ARC 11-97-87-094 OA161 ORBITER + PROBES	-2.000	.000	.000	-7.170	BREF	936.6800	IN.
GE7B41	△	ARC 11-97-87-094 OA161 ORBITER + PROBES	.000	.000	.000	-7.170	XMPP	1076.6800	IN. XO
GE7B43	▽	ARC 11-97-87-094 OA161 ORBITER + PROBES	5.000	.000	.000	-7.170	YMPP	.0000	IN. YO
GE7B44	◻	ARC 11-97-87-094 OA161 ORBITER + PROBES	8.000	.000	.000	-7.170	ZMPP	375.0000	IN. ZO
							SCALE	.0300	

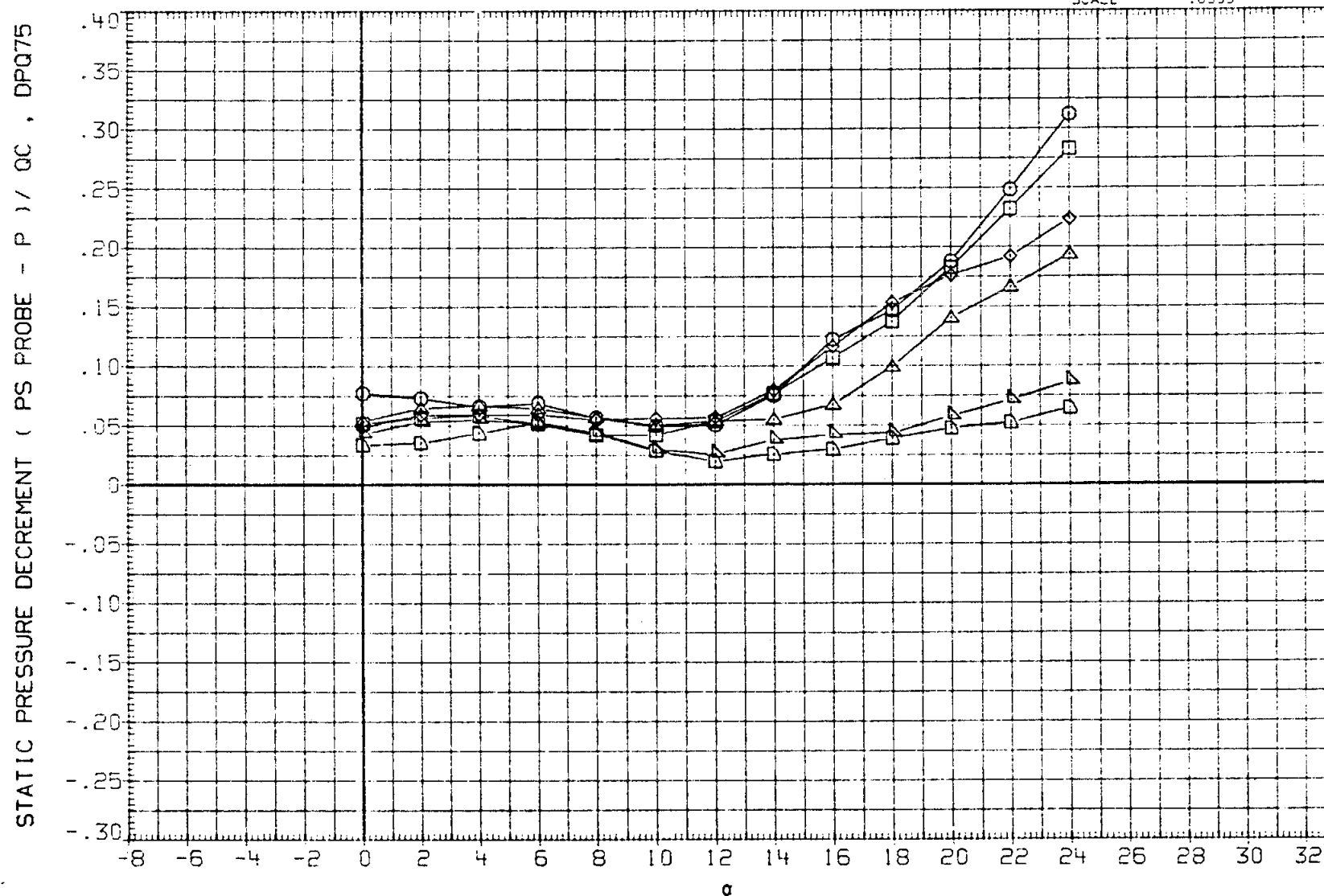


FIG. 32 NOSE PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(B) MACH = .60



(GE7Y38) ARC 11-97-87-094 OA161 ORBITER + FROBES

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET BETA

DATASET

BETA

REFERENCE INFORMATION

.000  
8.000  
12.000  
16.000  
20.000  
24.000

MACH  
AILRON

.300  
.000

ELEVON  
BDFLAP

.000  
-7.170

GE7Y38  
GE7Y40  
GE7Y43

-8.000  
-2.000  
5.000

GE7Y39  
GE7Y41  
GE7Y42

-5.000  
.000  
8.000

SREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

LOCAL MACH NUMBER WING PITOT/STATIC PROBE, M66

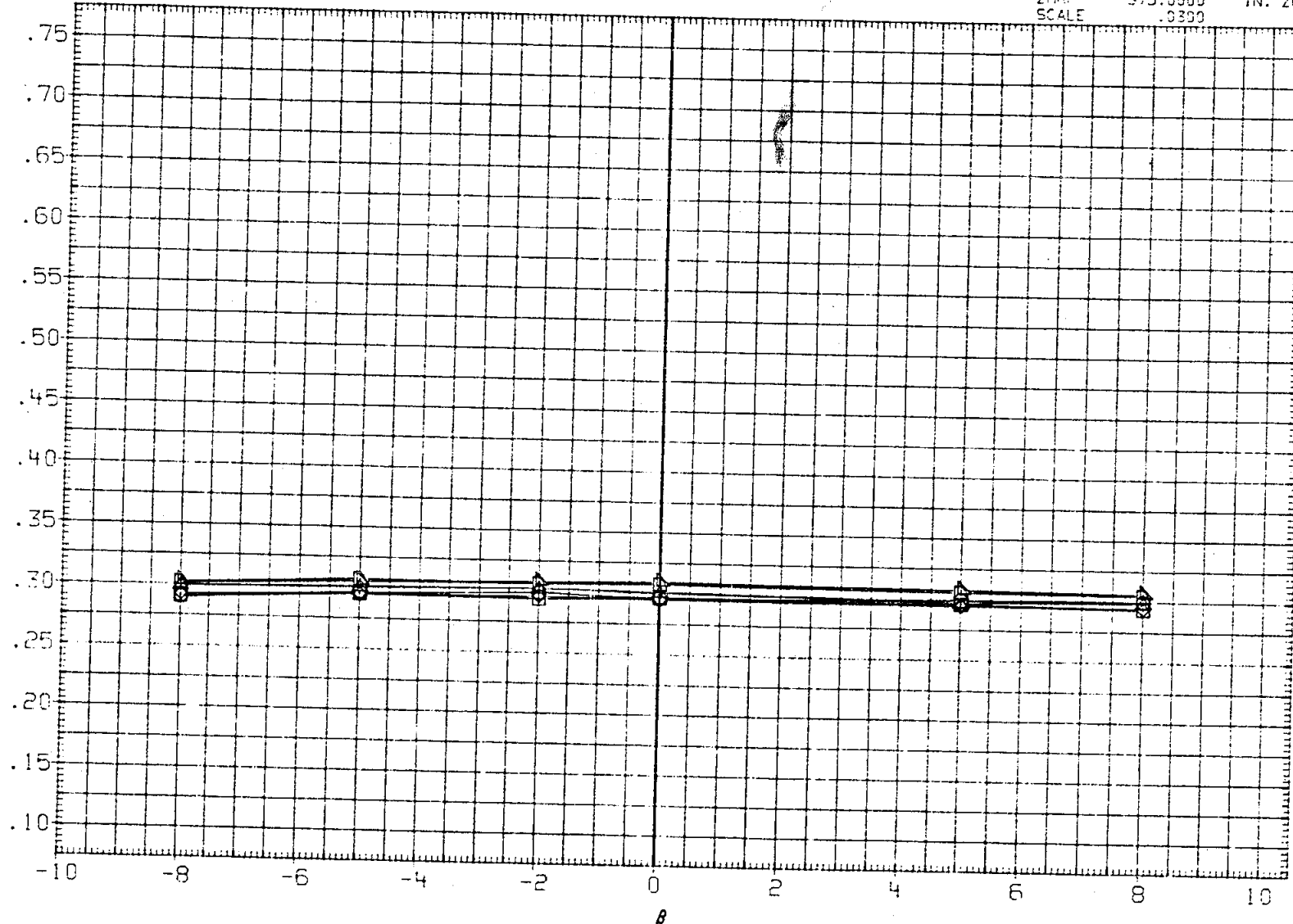


FIG. 33 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

SYMBO

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

0.000  
8.000  
12.000  
16.000  
20.000  
24.000

MACH  
AILRON

.600  
.000

ELEVON  
BDFLAP

.000  
-7.170

GE7Y38  
GE7Y40  
GE7Y43

-8.000  
-2.000  
5.000

GE7Y39  
GE7Y41  
GE7Y44

-5.000  
.000  
8.000

SREF 2690.0000 50. FT.  
LREF 474.8000 IN.  
BREF 935.6900 IN.  
XMRP 1076.6900 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0000

LOCAL MACH NUMBER WING PITOT/STATIC PROBE, M66

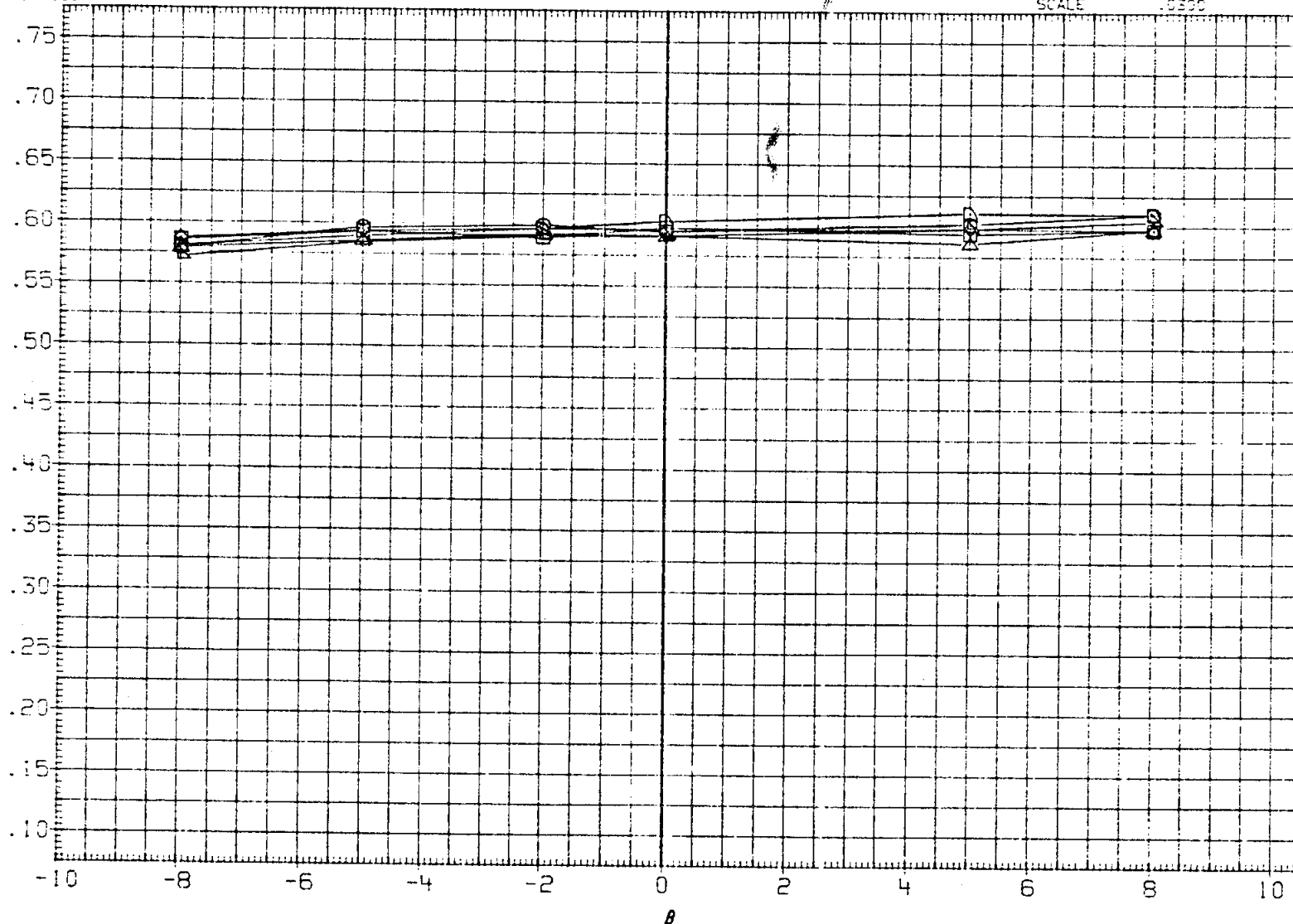


FIG. 33 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

(GE7Y38) ARC 11-97-87-094 OA161 ORBITER + PROBES

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	ELEVON	BOFLAP	DATASET	BETA	REFERENCE INFORMATION
◇	.000	.300	.000	.000	GE7Y38	-8.000	GE7Y39	2690.0000 SQ.FT.
◇	8.000	.000	.000	-7.170	GE7Y40	-2.000	GE7Y41	474.8000 IN.
◇	12.000				GE7Y43	5.000	GE7Y44	935.6800 IN.
◇	16.000							1076.6800 IN. X0
◇	20.000							.0000 IN. Y0
◇	24.000							375.0000 IN. Z0
								SCALE .0300

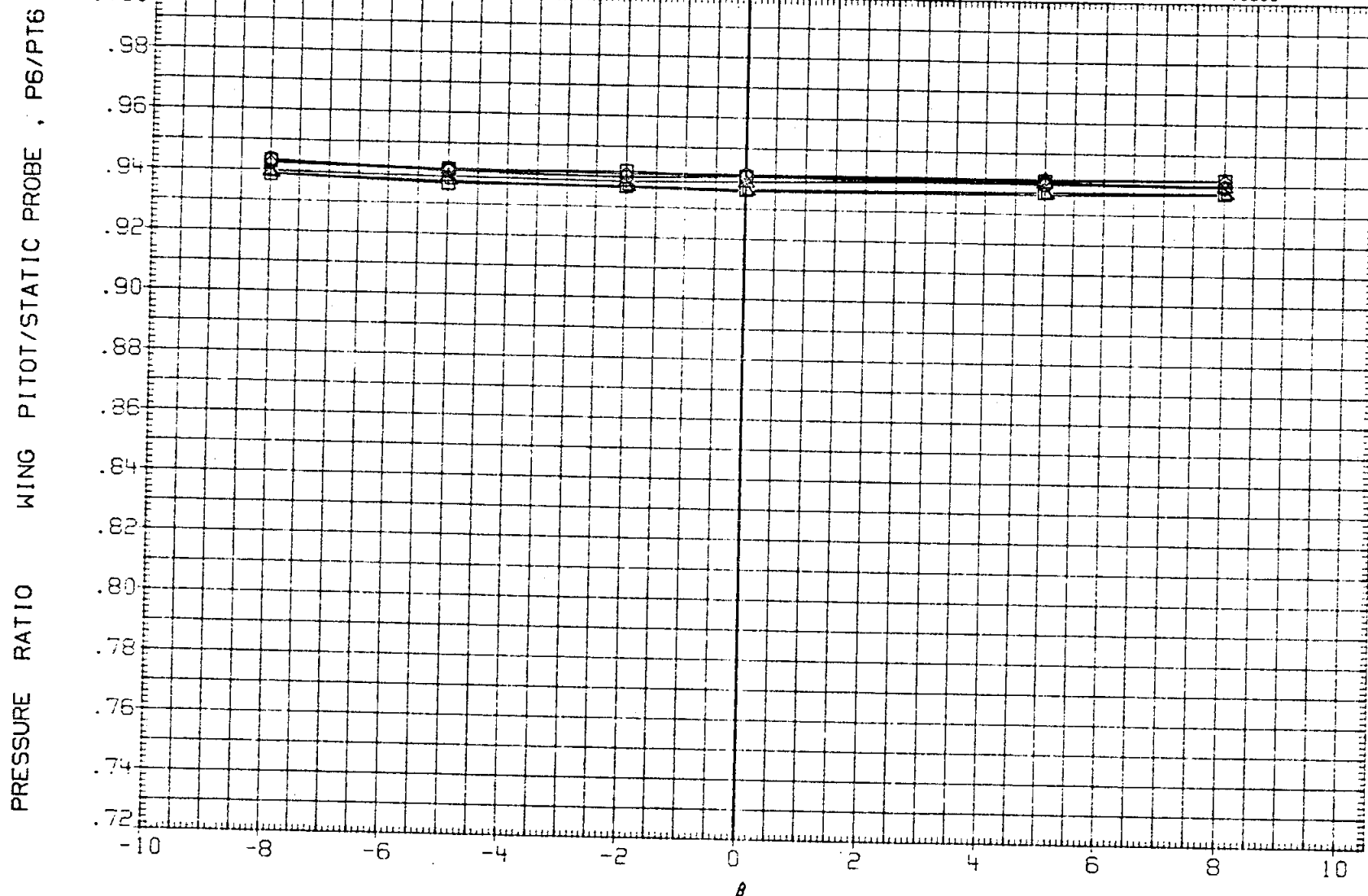


FIG. 33 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

SYMBOL	ALPHA	PARAMETRIC VALUES				DATASET	BETA	DATASET	BETA	REFERENCE INFORMATION		
	.000	MACH	.600	ELEVON	.000	GE7Y38	-8.000	GE7Y38	-5.000	SREF	2690.0000	50.FT.
	8.000	AILRON	.000	BOFLAP	-7.170	GE7Y40	-2.000	GE7Y40	.000	LREF	474.8000	IN.
	12.000					GE7Y43	5.000	GE7Y43	8.000	BREF	936.6800	IN.
	16.000									XMRP	1076.5800	IN. XO
	20.000									YMRP	.0000	IN. YO
	24.000									ZMRP	375.0300	IN. ZO
										SCALE	.0300	

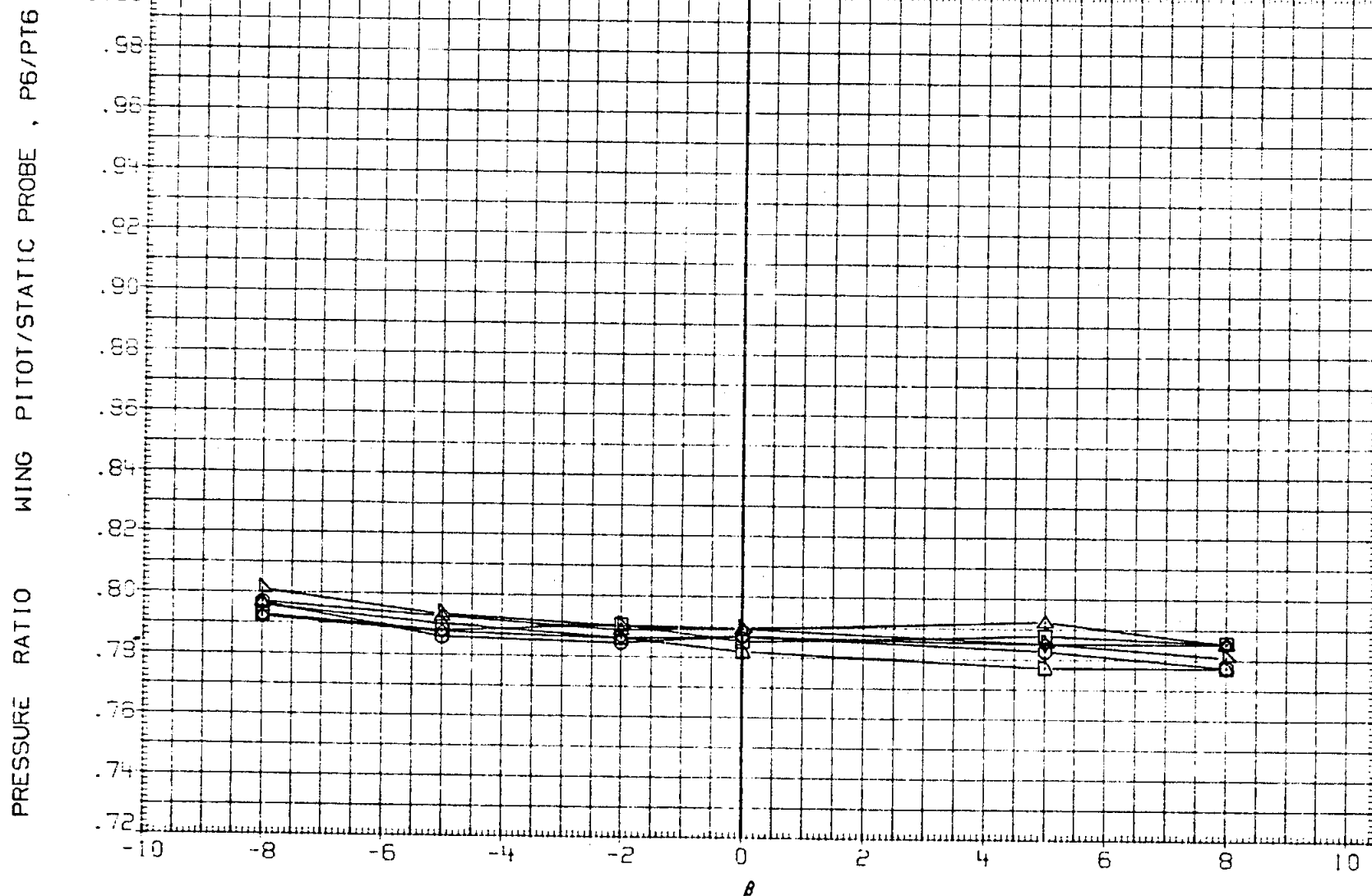


FIG. 33 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

(GE7C38) ARC 11-97-87-094 0A161 ORBITER + PROBES

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	DATASET	BETA	DATASET	BETA	REFERENCE INFORMATION
	.000							SREF 2690.0000 SQ. FT.
	8.000			GE7C38	-8.000	GE7C39	-5.000	LREF 474.8000 IN.
	12.000	AILRON	.300 ELEVON	GE7C43	-2.000	GE7C41	.000	BREF 935.6800 IN.
	16.000		.000 BDPLAP	GE7C43	5.000	GE7C44	8.000	XMRF 1076.6800 IN. XO
	20.000							YMRF .0000 IN. YO
	24.000							ZMRF 375.0000 IN. ZO
								SCALE .0300

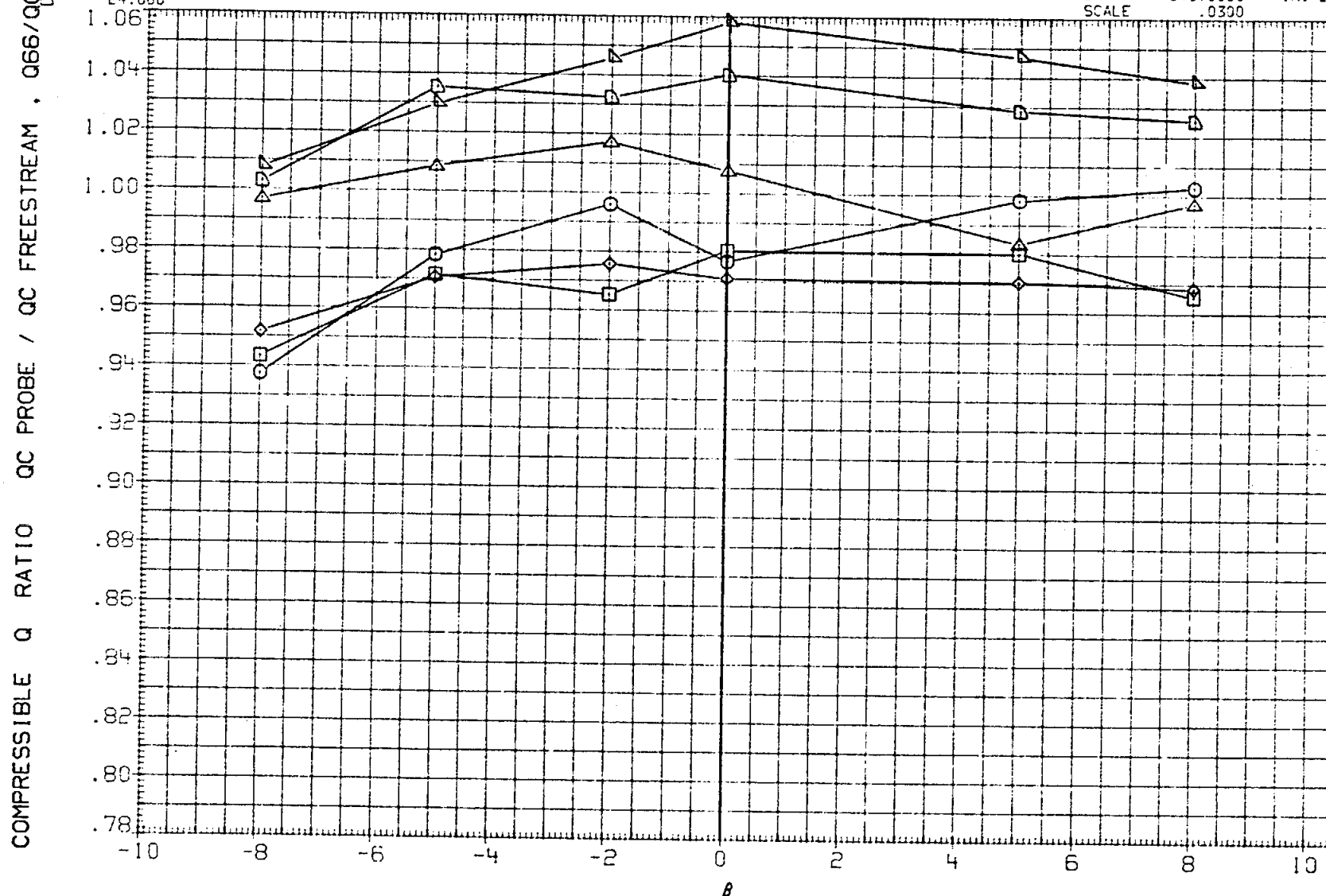
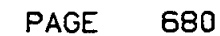


FIG. 33 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS



(GE7C38) ARC 11-97-87-094 0A161 ORBITER + PROBES

ORDERS + PROBES										REFERENCE INFORMATION		
SYMBOL	ALPHA	PARAMETRIC VALUES			DATASET	BETA	DATASET	BETA				
000444	.000	MACH	.300	ELEVON	.000	GE7C38	-8.000	GE7C39	-5.000	SREF	2690.0000	SQ.FT.
	8.000	AILRON	.000	BOFLAP	-7.170	GE7C40	-2.000	GE7C41	.000	LREF	474.8000	IN.
	12.000					GE7C43	5.000	GE7C44	8.000	BREF	936.6800	IN.
	16.000									XMRP	1076.6800	IN. XO
	20.000									YMRP	.0000	IN. YO
	24.000									ZMRP	375.0000	IN. ZO
										SCALE	.0300	

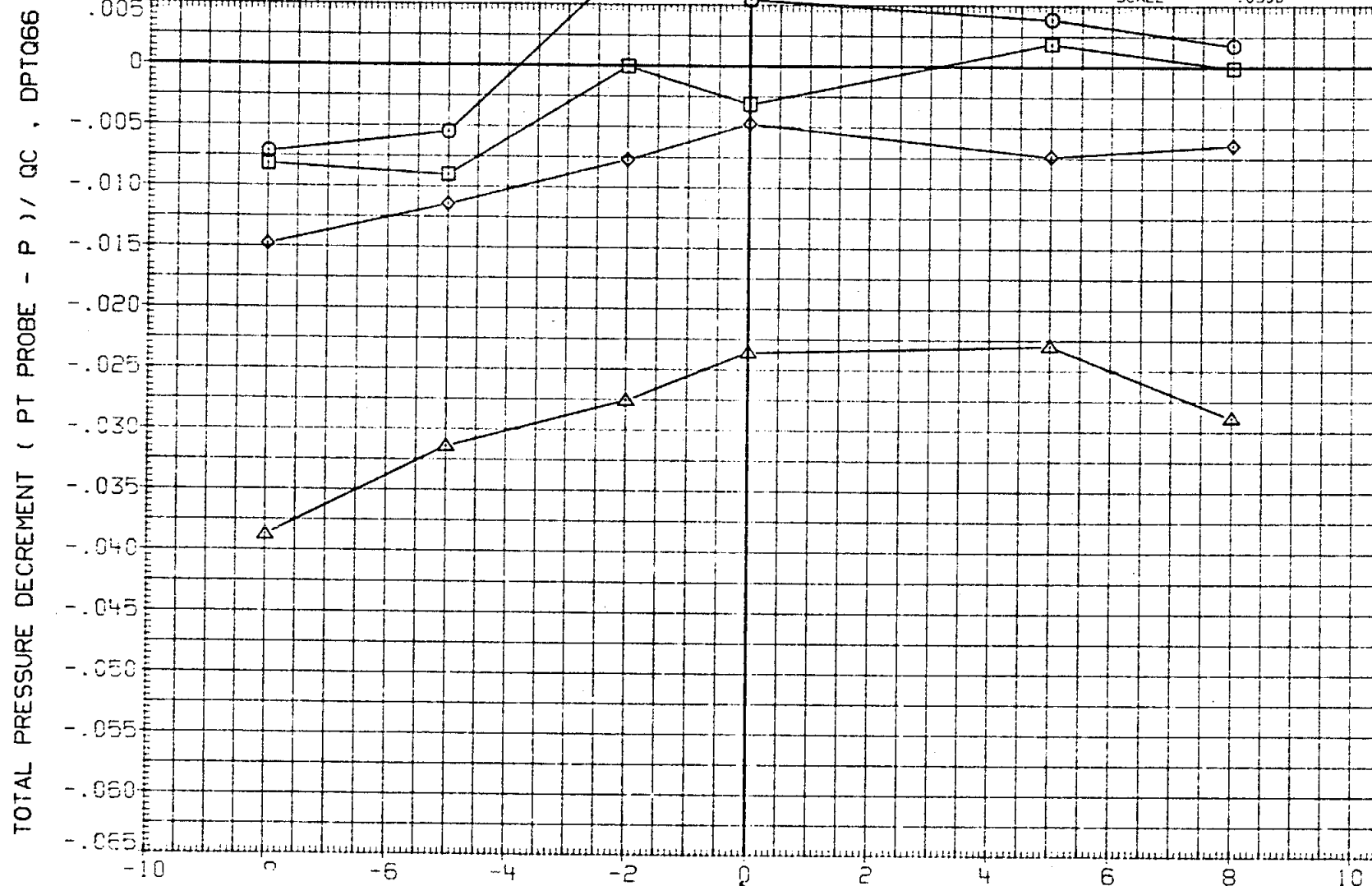


FIG. 33 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. XO
YMRP	1.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	0.000	

TOTAL PRESSURE DECREMENT ( PT PROBE - P ) / QC , DPTQ66

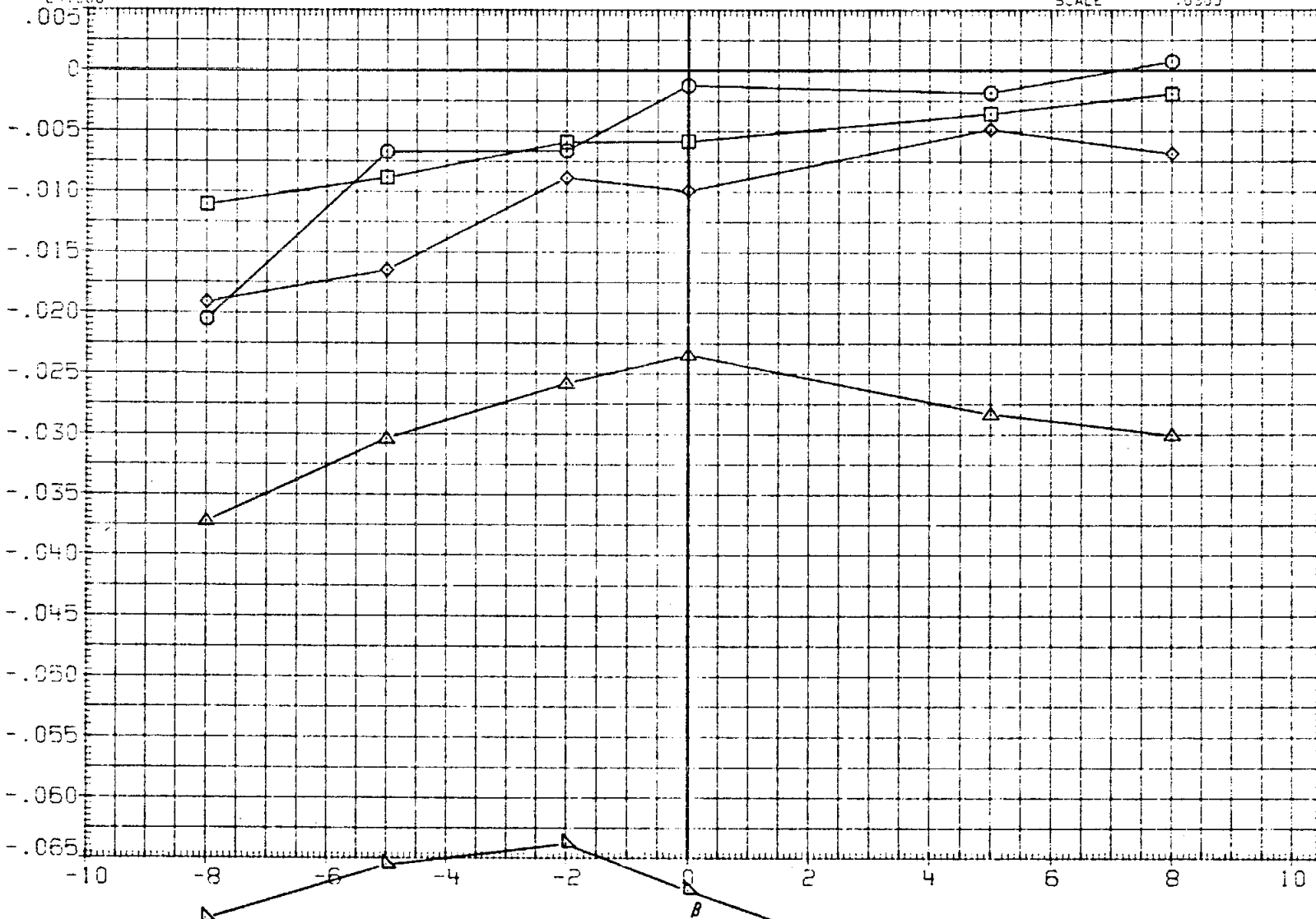


FIG. 33 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS



(GE7C38) ARC 11-97-87-094 0A161 ORBITER + PROBES

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

MACH .000  
AILRON .300  
ELEVON .000  
BDFLAP -7.170

GE7C38 -8.000  
GE7C40 -2.000  
GE7C43 5.000

STATIC PRESSURE DECREMENT ( PS PROBE - P ) / QC , DPQ66

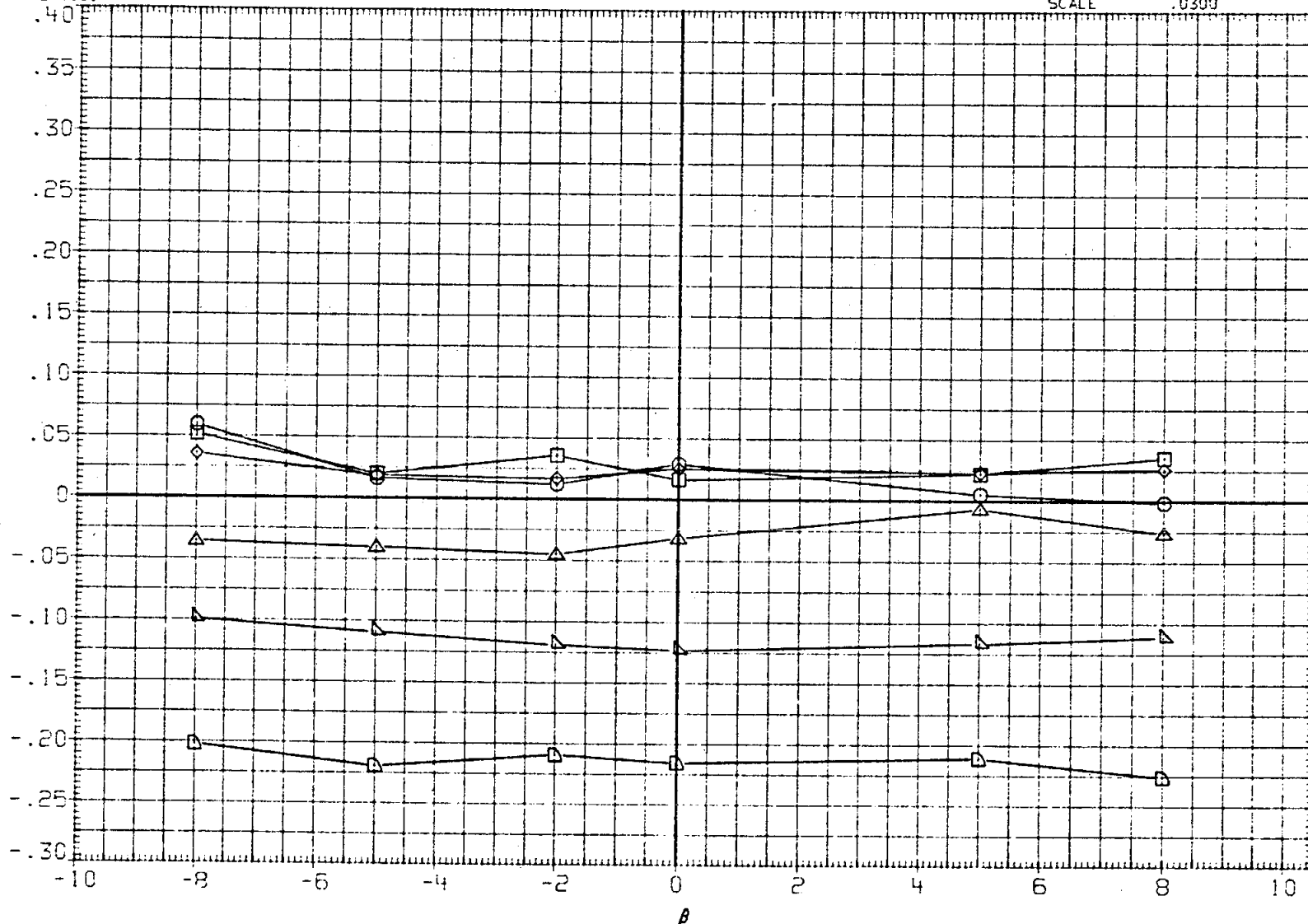


FIG. 33 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

STATIC PRESSURE DECREMENT ( PS PROBE - P ) / QC , DPQ66

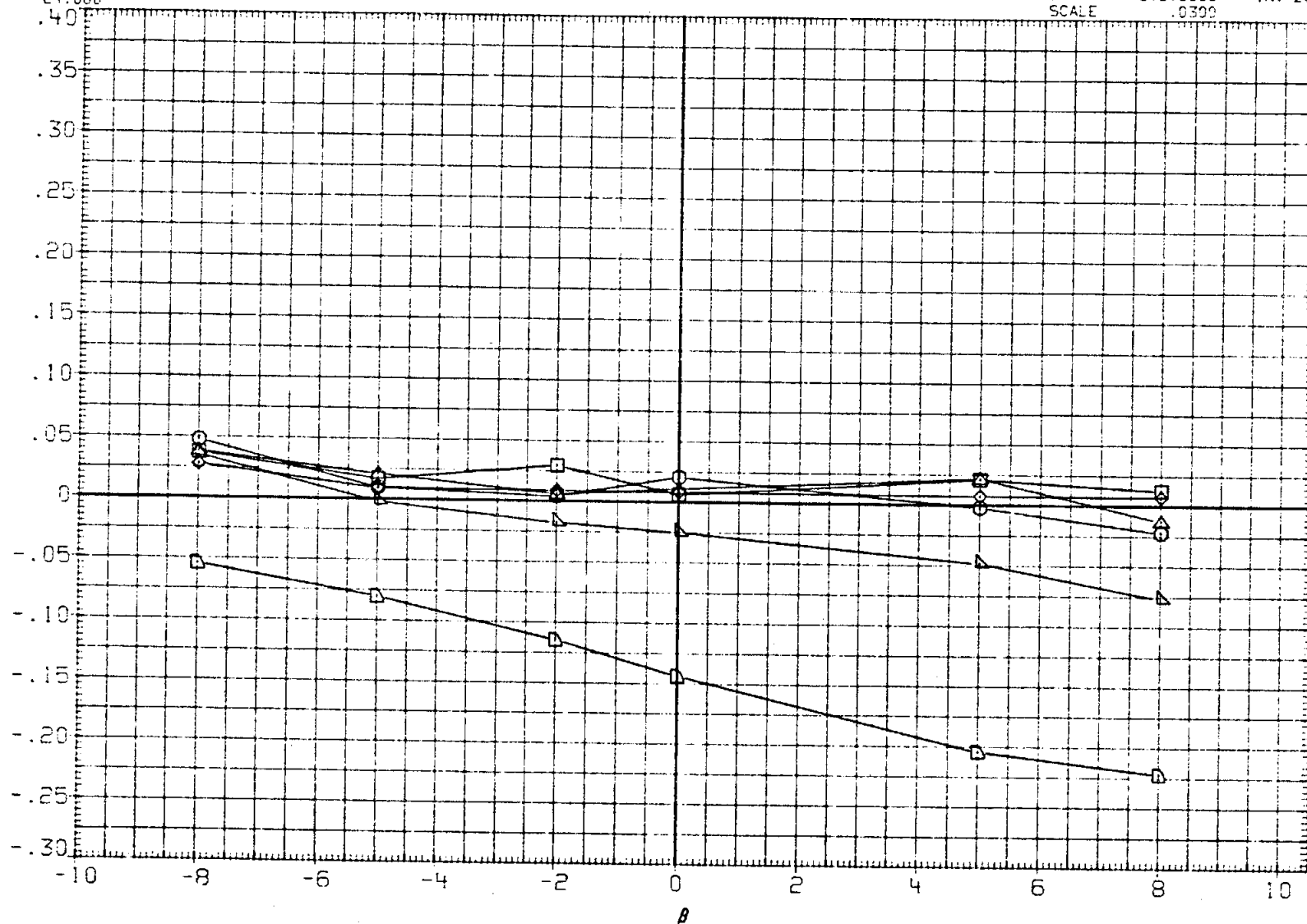


FIG. 33 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

(GE7Y45) ARC 11-97-87-094 0A161 ORBITER + PROBES

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6900 IN. X0  
YMRP .0000 IN. Y0  
ZMRP 375.0000 IN. Z0  
SCALE .0300

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8.000  
12.000  
16.000  
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MACH  
AILRON

.300  
.000  
ELEVON  
BDFLAP

15.000  
-7.170

GE7Y45  
GE7Y47  
GE7Y49

-5.000  
.000  
5.000

GE7Y46  
GE7Y48

-2.000  
2.000

LOCAL MACH NUMBER WING PITOT/STATIC PROBE, M66

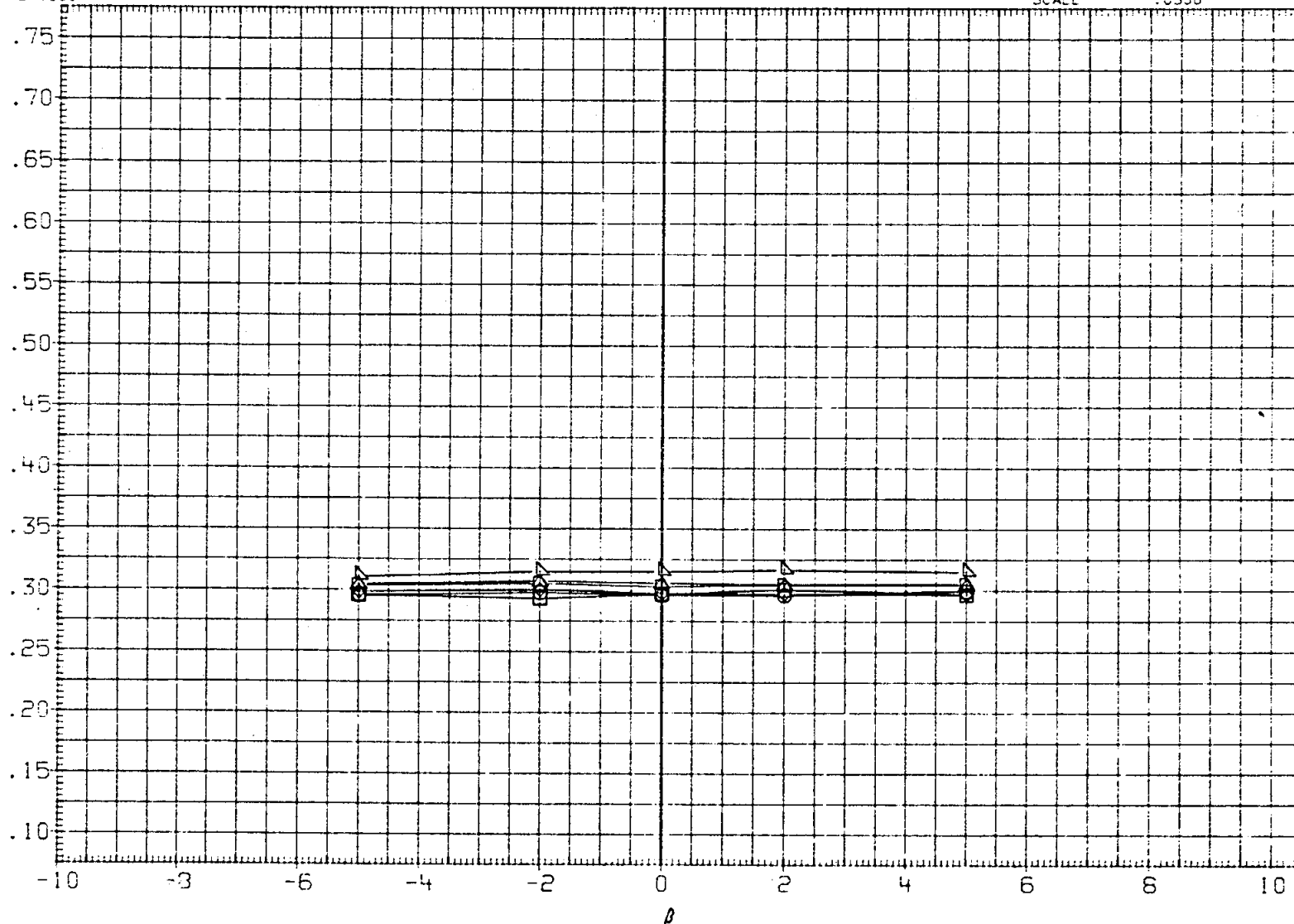


FIG. 33 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET BETA

DATASET BETA

REFERENCE INFORMATION

.000  
8.000  
12.000  
16.000  
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MACH  
AILRON

.600  
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ELEVON  
BDFLAP

15.000  
-7.170  
GE7Y45  
GE7Y47  
GE7Y49

-5.000  
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GE7Y46  
GE7Y48  
-2.000  
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SREF 2690.0000 SQ.FT.  
LREF 474.8500 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. X0  
YMRP .0000 IN. Y0  
ZMRP 375.0000 IN. Z0  
SCALE .0300

LOCAL MACH NUMBER WING PITOT/STATIC PROBE, M66

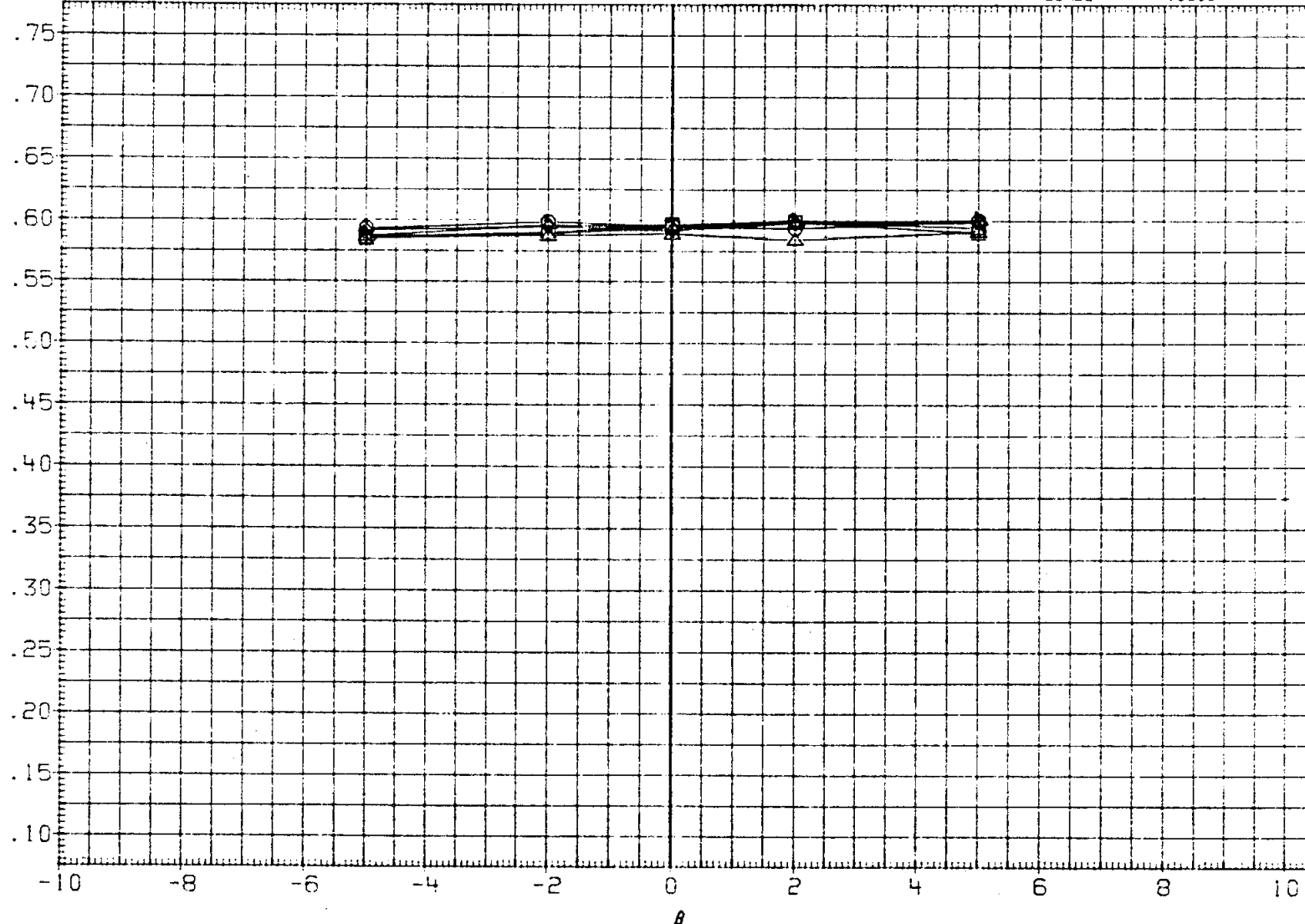


FIG. 33 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

(GE7Y45) ARC 11-97-87-094 0A161 ORBITER + PROBES

SYMBOL  
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ALPHA	MACH	PARAMETRIC VALUES	ELEVON	BDFLAP	15.000	GE7Y45	BETA	GE7Y46	GE7Y47	GE7Y48	GE7Y49
.000	.300	.000	-7.170	-5.000	.000	5.000					

REFERENCE INFORMATION		
SREF	2690.0000	50. FT.
LREF	474.8000	IN.
BREF	936.6800	IN.
XMRP	1076.6800	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

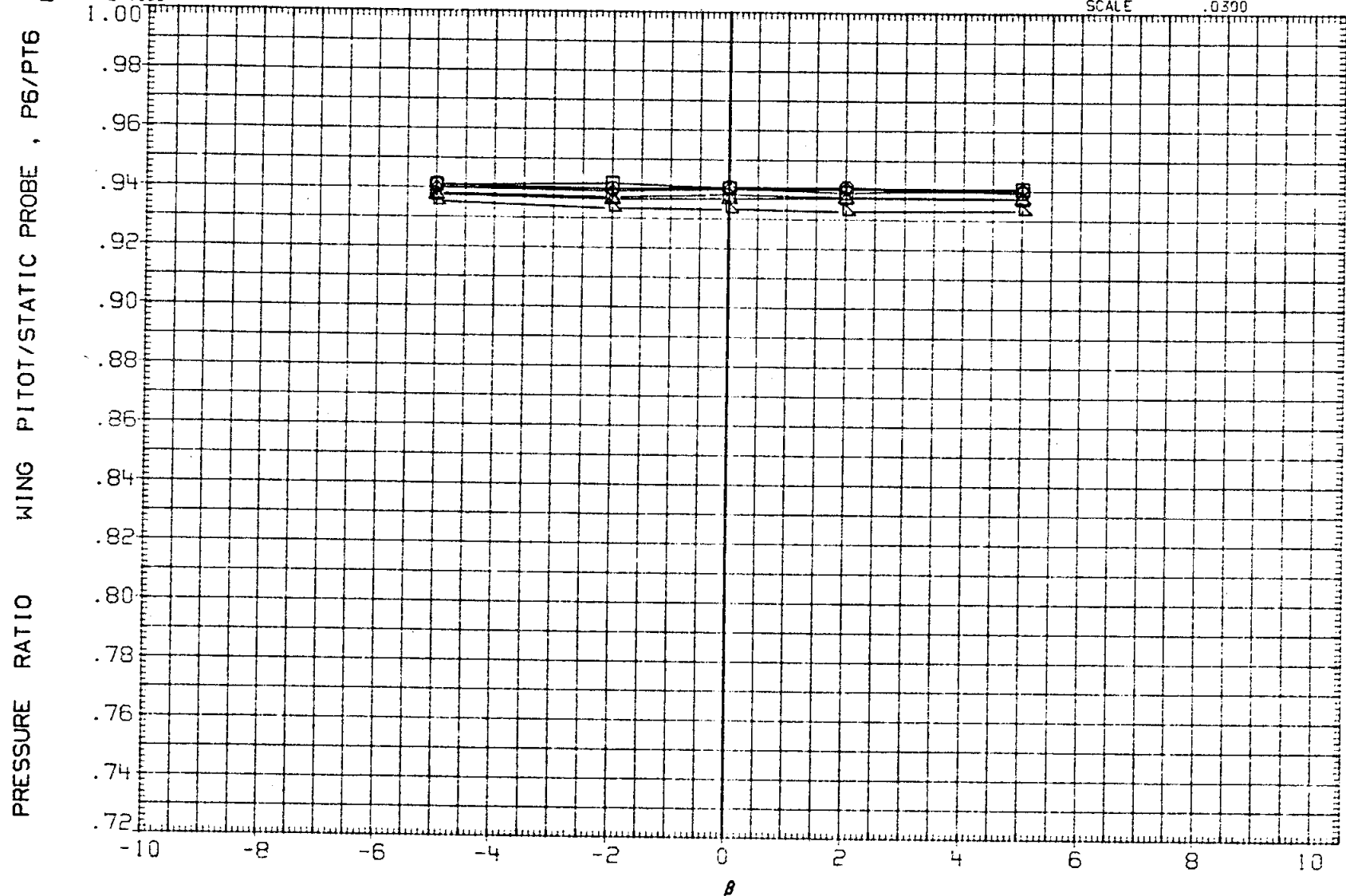


FIG. 33 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

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BETA

REFERENCE INFORMATION

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MACH  
ATLON

.600  
.000

ELEVON  
BDCLAP

15.000  
-7.170

GE7Y45  
GE7Y47  
GE7Y49

-5.000  
.000  
5.000

GE7Y46  
GE7Y48

-2.000  
2.000

SPET  
LREF  
BREF  
XMRP  
YMRP  
ZMRP  
SCALE

2690.0000  
474.8000  
936.6800  
1076.5800  
.0000  
375.0000  
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50. FT.  
IN.  
IN.  
IN. XO  
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WING PITOT/STATIC PROBE, P6/PT6

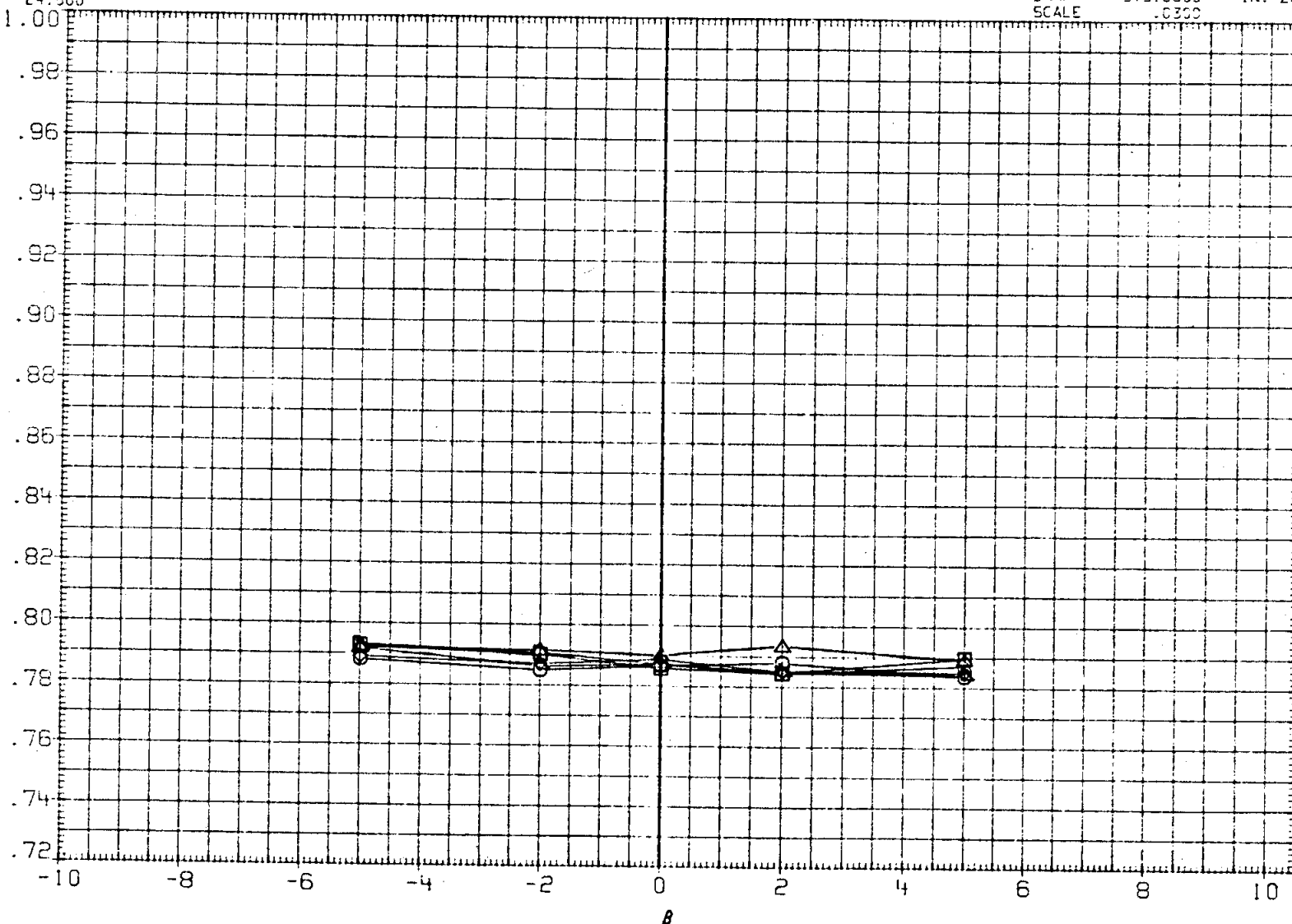


FIG. 33 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

(GE7C45) ARC 11-97-87-094 0A161 ORBITER + PROBES

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET BETA

DATASET BETA

REFERENCE INFORMATION

.000  
8.000  
12.000  
16.000  
20.000  
24.000

MACH  
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.300  
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ELEVON  
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15.000  
-7.170

GE7C45 -5.000  
GE7C47 .000  
GE7C49 5.000

GE7C46 -2.000  
GE7C48 2.000

SREF 2693.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 936.6800 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .6330

COMPRESSIBLE Q RATIO QC PROBE / QC FREESTREAM . Q66/QC

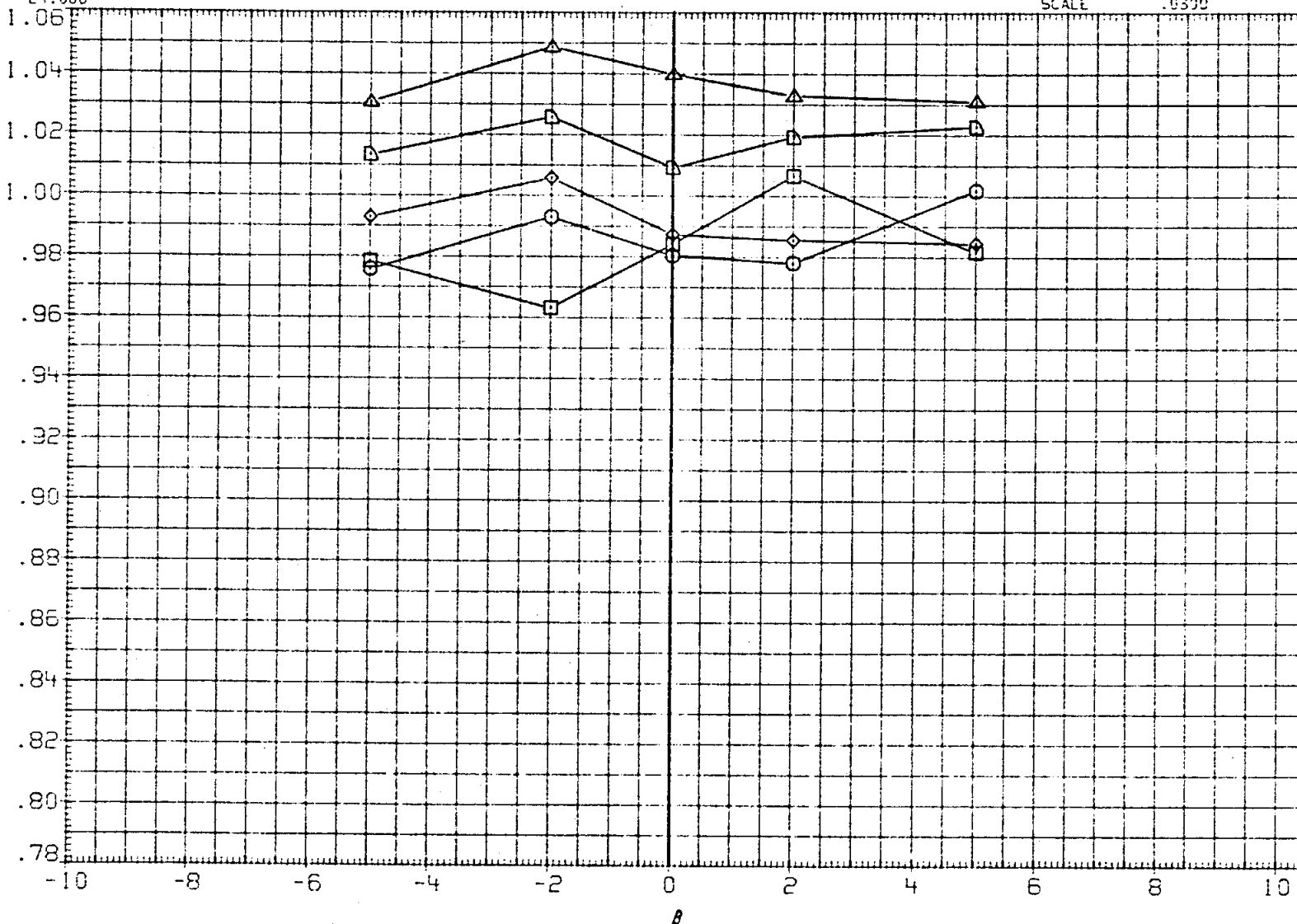


FIG. 33 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

SYMBOL ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

1.000  
8.000  
12.000  
16.000  
20.000  
24.000

MACH  
ATLON

.600  
.000

ELEVON  
BOFLAP

15.000  
-7.170

GE7C45  
GE7C47  
GE7C49

-5.000  
.000  
5.000

GE7C46  
GE7C48

-2.000  
2.000

SREF 2690.0000 SQ.FT.  
LREF 474.8000 IN.  
BREF 935.6000 IN.  
XMRP 1076.6000 IN. YO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0300

COMPRESSIBLE Q RATIO QC PROBE / QC FREESTREAM, Q66/QC

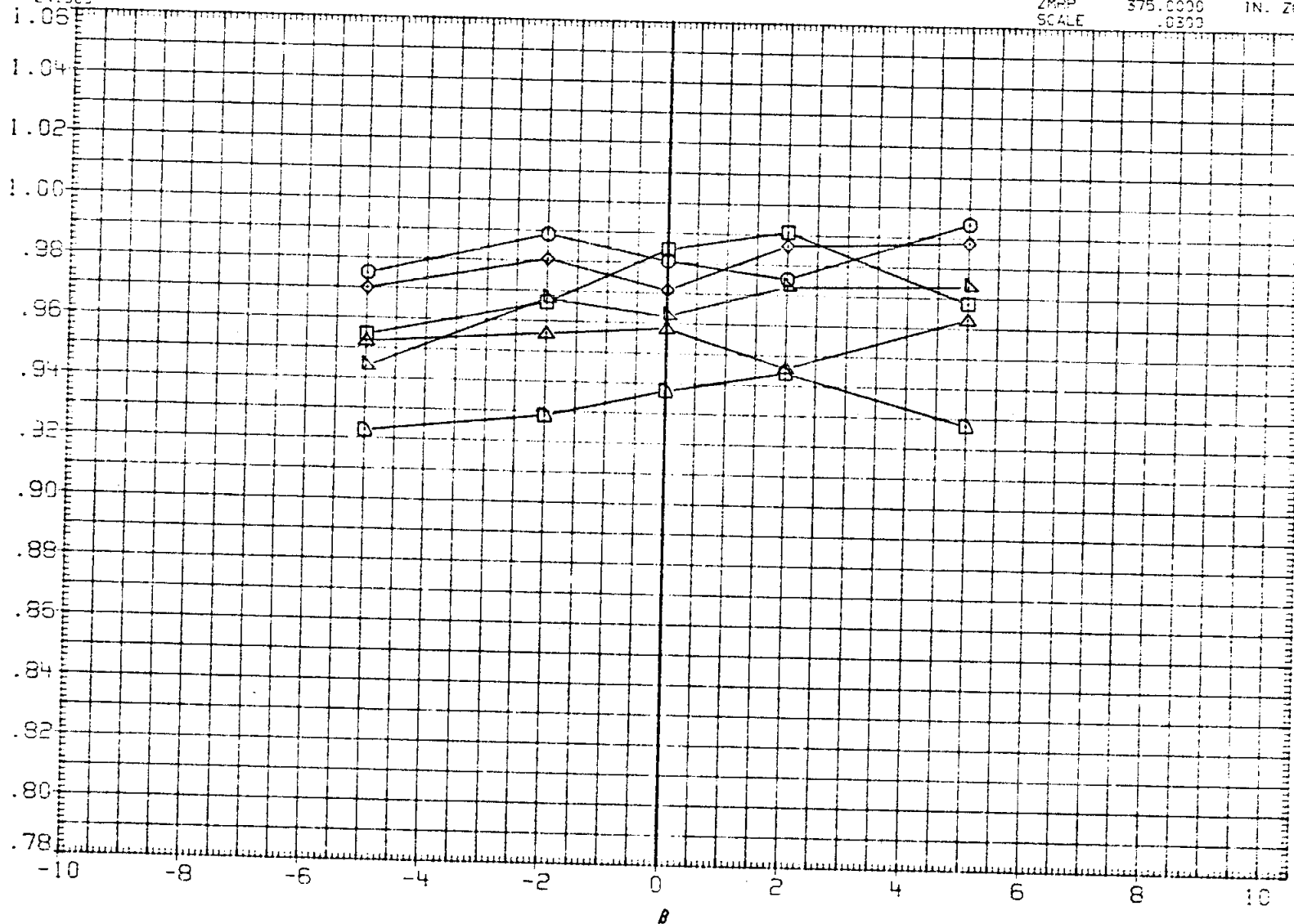


FIG. 33 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS



(GE7C45) ARC 11-97-87-094 0A161 ORBITER + PROBES

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	ELEVON	15.000	GE7C45	BETA	GE7C46	BETA	GE7C48	REFERENCE INFORMATION
◇	.000	8.000	AILRON	.300	BD FLAP	-7.170	-5.000	-2.000	2.000		SREF 2690.0000 SQ.FT.
◇	8.000	12.000		.000			.000				LREF 474.8000 IN.
◇	12.000	16.000					5.000				BREF 936.6800 IN.
◇	16.000	20.000									XMRF 1076.6900 IN. XO
◇	20.000	24.000									YMRF .0000 IN. YO
◇	24.000										ZMRF 375.0000 IN. ZO
											SCALE .0300

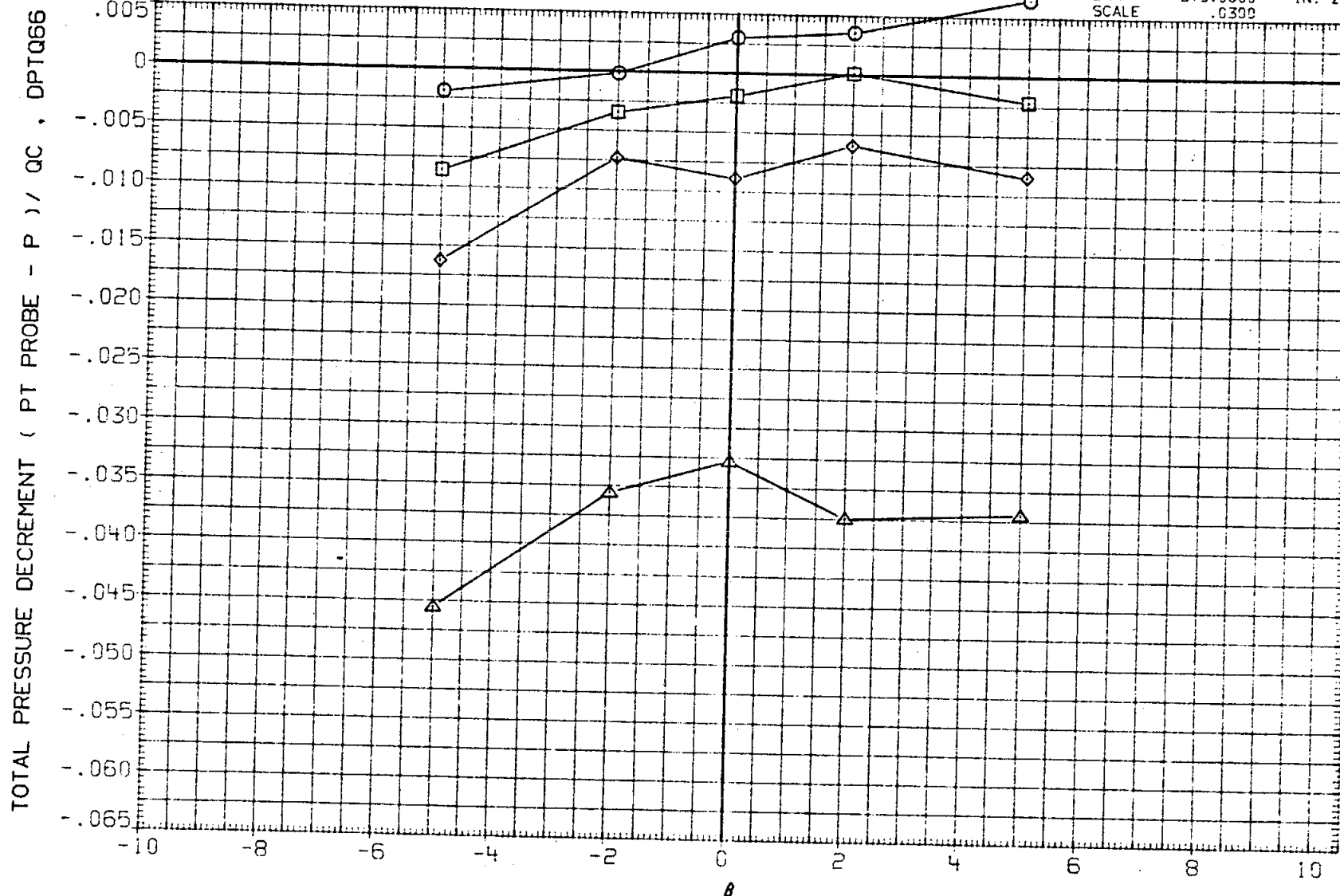


FIG. 33 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

SREF	2690.0000	50. FT.
UREF	474.8000	IN.
BREF	935.8000	IN.
XMRP	1076.6800	IN. XO
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0000	

TOTAL PRESSURE DECREMENT ( PT PROBE - P ) / QC , DPTQ66

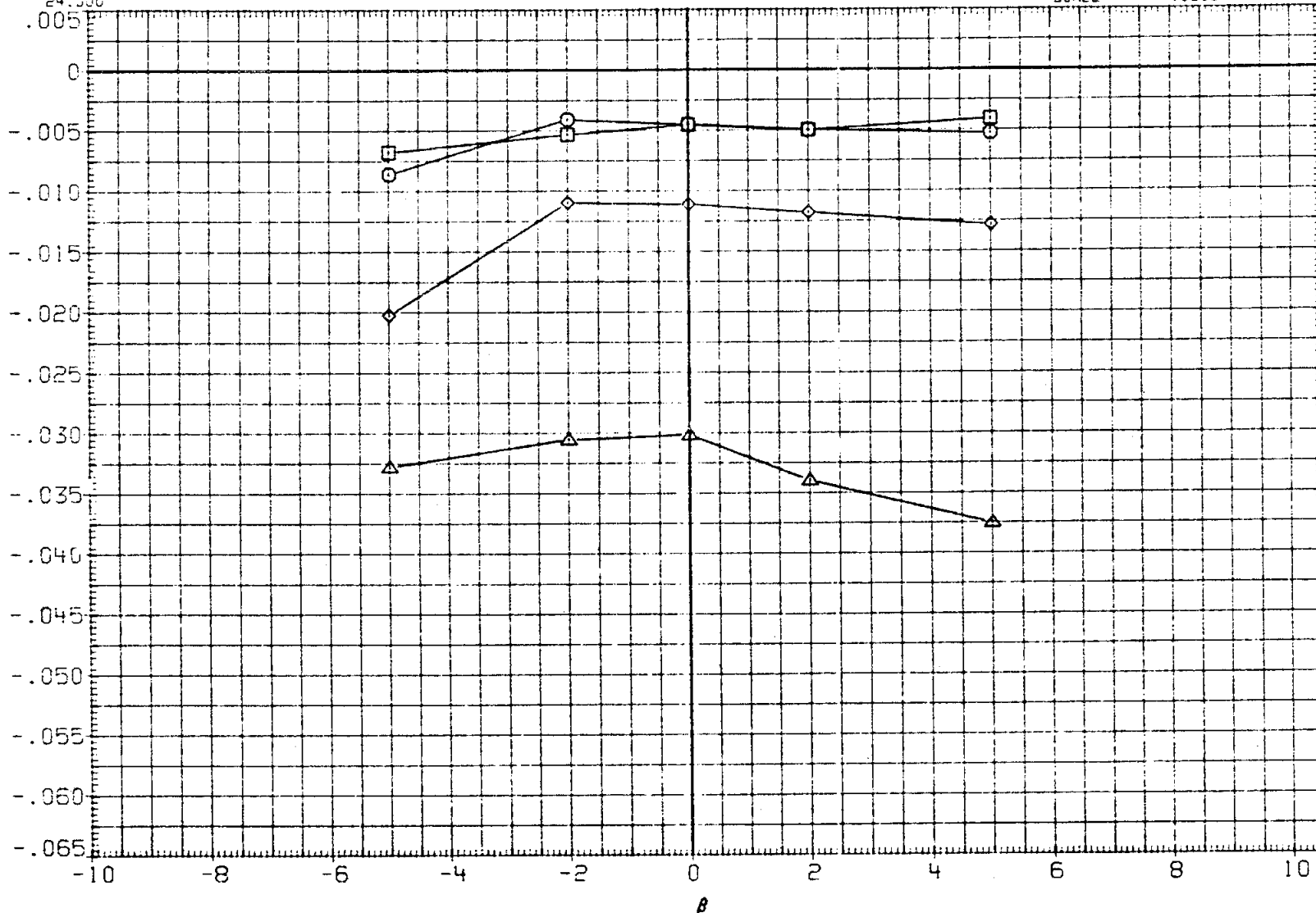


FIG. 33 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

(GE7C45) ARC 11-97-87-094 OA161 ORBITER + PROBES

MRS 11 37 37.034 CATO ORBITER + PROBES														REFERENCE INFORMATION			
SYMBOL	ALPHA			PARAMETRIC VALUES			DATASET		BETA		DATASET		BETA		REFERENCE INFORMATION		
□ ◇ ◇ ◇ ◇ ◇		.000	MACH	.300	ELEVON	15.000	GE7C45	-5.000	GE7C46	-2.000	SREF	2690.0000	SQ.FT.				
		8.000	AILRON	.000	BDFLAP	-7.170	GE7C47	.000	GE7C48	2.000	LREF	474.8000	IN.				
		12.000					GE7C49	5.000			BREF	936.6800	IN.				
		16.000									XMRP	1076.6800	IN. XC				
		20.000									YMRP	.0000	IN. YO				
		24.000									ZMRP	375.0000	IN. ZO				
	L.C. 0.000																

STATIC PRESSURE DECREMENT ( PS PROBE - P ) / QC , DPQ66

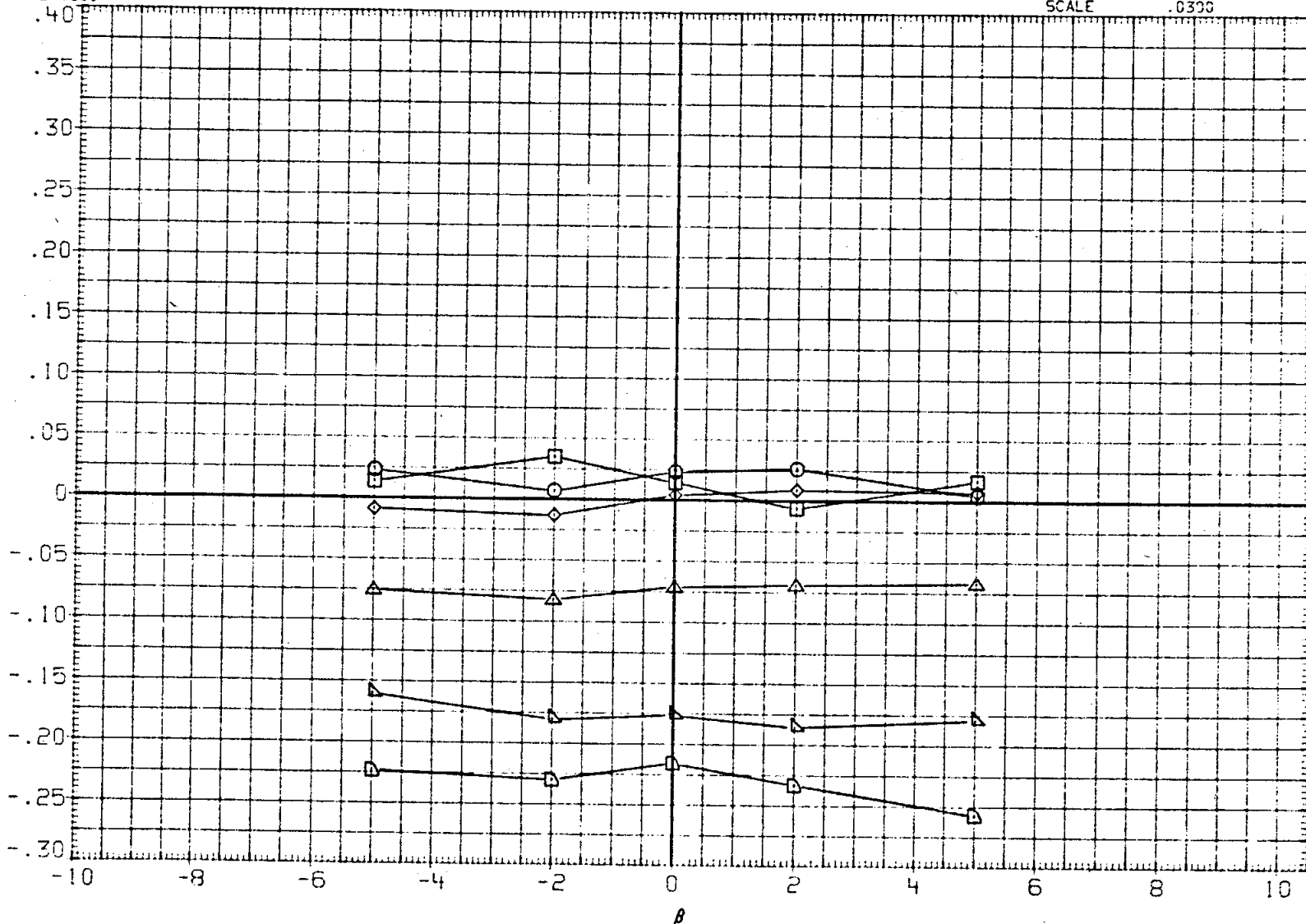


FIG. 33 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

SYMBOL

ALPHA

PARAMETRIC VALUES

DATASET

BETA

DATASET

BETA

REFERENCE INFORMATION

0.000  
8.000  
12.000  
16.000  
20.000  
24.000

HACH  
AILRON

.600  
.000

ELEVON  
BDFLAP

15.000  
-7.170

GE7C45  
GE7C47  
GE7C49

-5.000  
.000  
5.000

GE7C46  
GE7C48

-2.000  
2.000

SREF 2690.0000 50. F1.  
LREF 474.8000 IN.  
BREF 935.6800 IN.  
XMPP 1076.6800 IN. X0  
YMRP .0000 IN. Y0  
ZMRP 375.0000 IN. Z0  
SCALE .0300

STATIC PRESSURE DECREMENT ( PS PROBE - P ) / QC , DPQ66

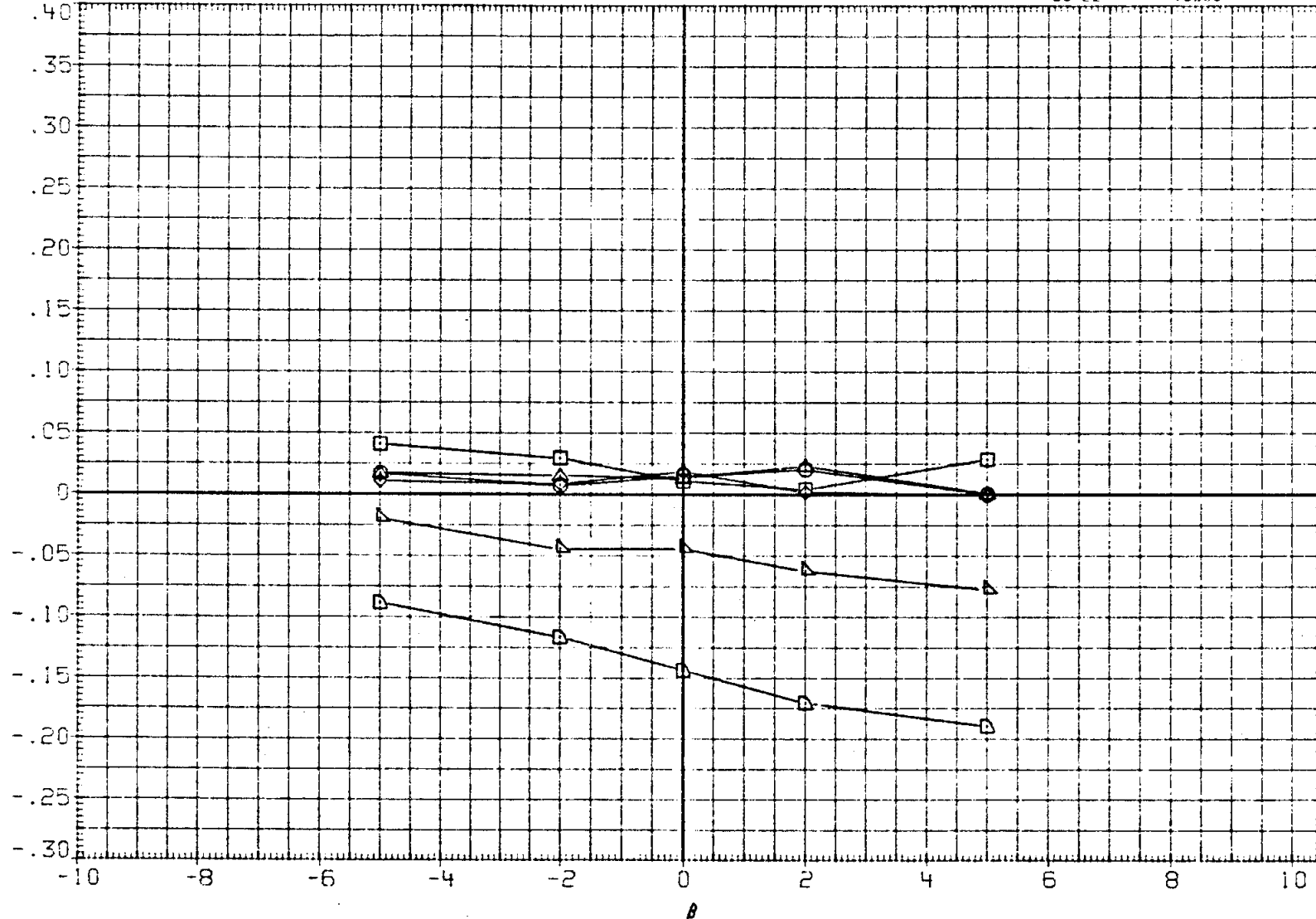


FIG. 33 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS BETA AT VARIOUS ALPHAS

DATA SET SYMBOL		CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
GE7X45	○	ARC 11-97-87-094 OA161 ORBITER + PROBES	-5.000	15.000	.000	-7.170	SREF	2690.0000	SQ.FT.
GE7X46	◇	ARC 11-97-87-094 OA161 ORBITER + PROBES	-2.000	15.000	.000	-7.170	LREF	474.8000	IN.
GE7X47	□	ARC 11-97-87-094 OA161 ORBITER + PROBES	.000	15.000	.000	-7.170	BREF	936.6900	IN.
GE7X48	△	ARC 11-97-87-094 OA161 ORBITER + PROBES	2.000	15.000	.000	-7.170	XMRP	1076.6800	IN. XO
GE7X49	▽	ARC 11-97-87-094 OA161 ORBITER + PROBES	5.000	15.000	.000	-7.170	YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.6300	

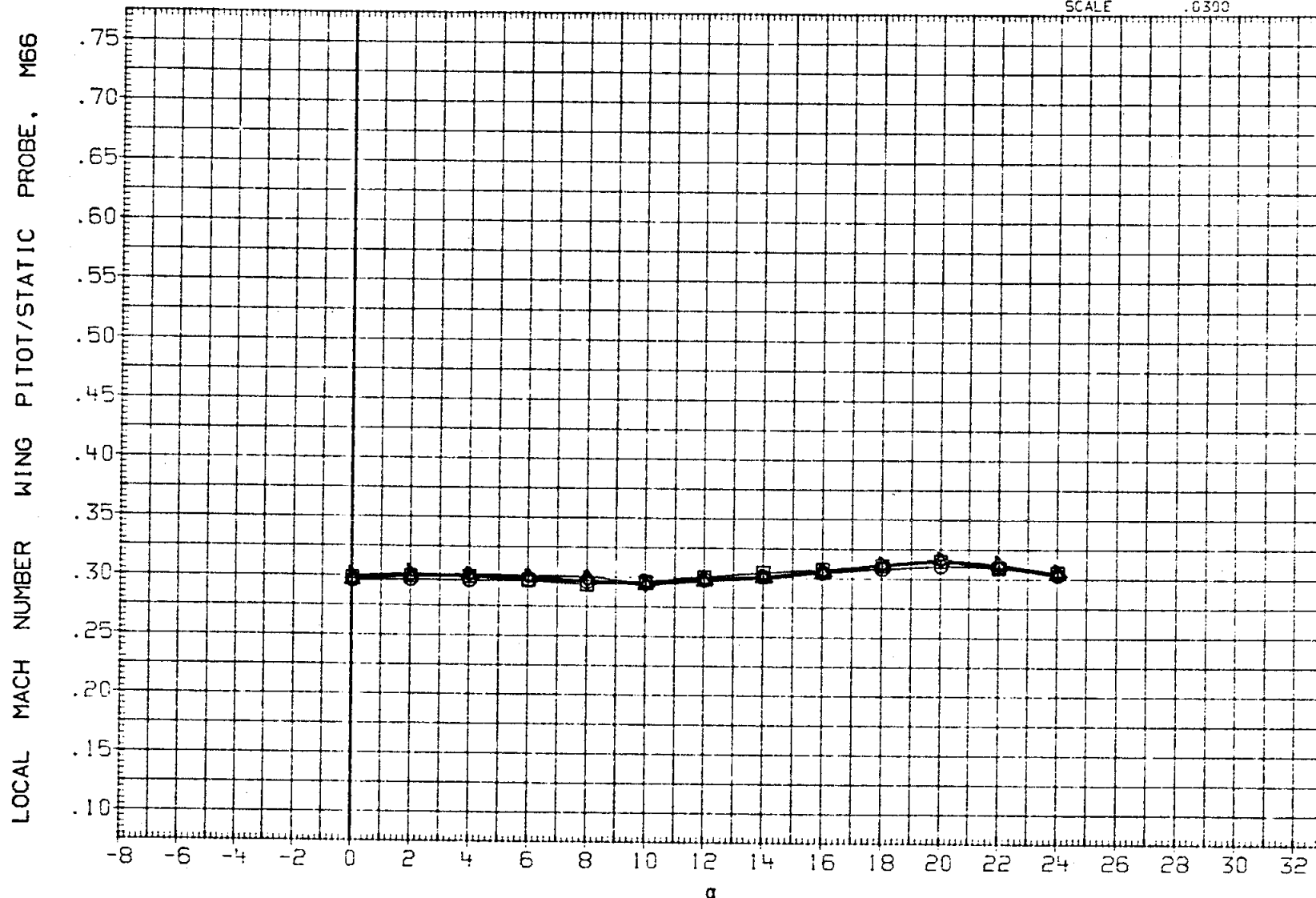


FIG. 34 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(A) MACH = .30

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BDFLAP

REFERENCE INFORMATION

GE7X45 ○ ARC 11-97-87-094 OA161 ORBITER + PROBES  
 GE7X46 □ ARC 11-97-87-094 OA161 ORBITER + PROBES  
 GE7X47 ◇ ARC 11-97-87-094 OA161 ORBITER + PROBES  
 GE7X48 △ ARC 11-97-87-094 OA161 ORBITER + PROBES  
 GE7X49 ▽ ARC 11-97-87-094 OA161 ORBITER + PROBES

-5.000 15.000 .000 -7.170  
 -2.000 15.000 .000 -7.170  
 .000 15.000 .000 -7.170  
 2.000 15.000 .000 -7.170  
 5.000 15.000 .000 -7.170

SREF 2690.0000 SQ. FT.  
 LREF 474.8000 IN.  
 BREF 935.6500 IN.  
 XMRP 1076.6800 IN. XO  
 YMRP .0000 IN. YO  
 ZMRP 375.0000 IN. ZO  
 SCALE .0000

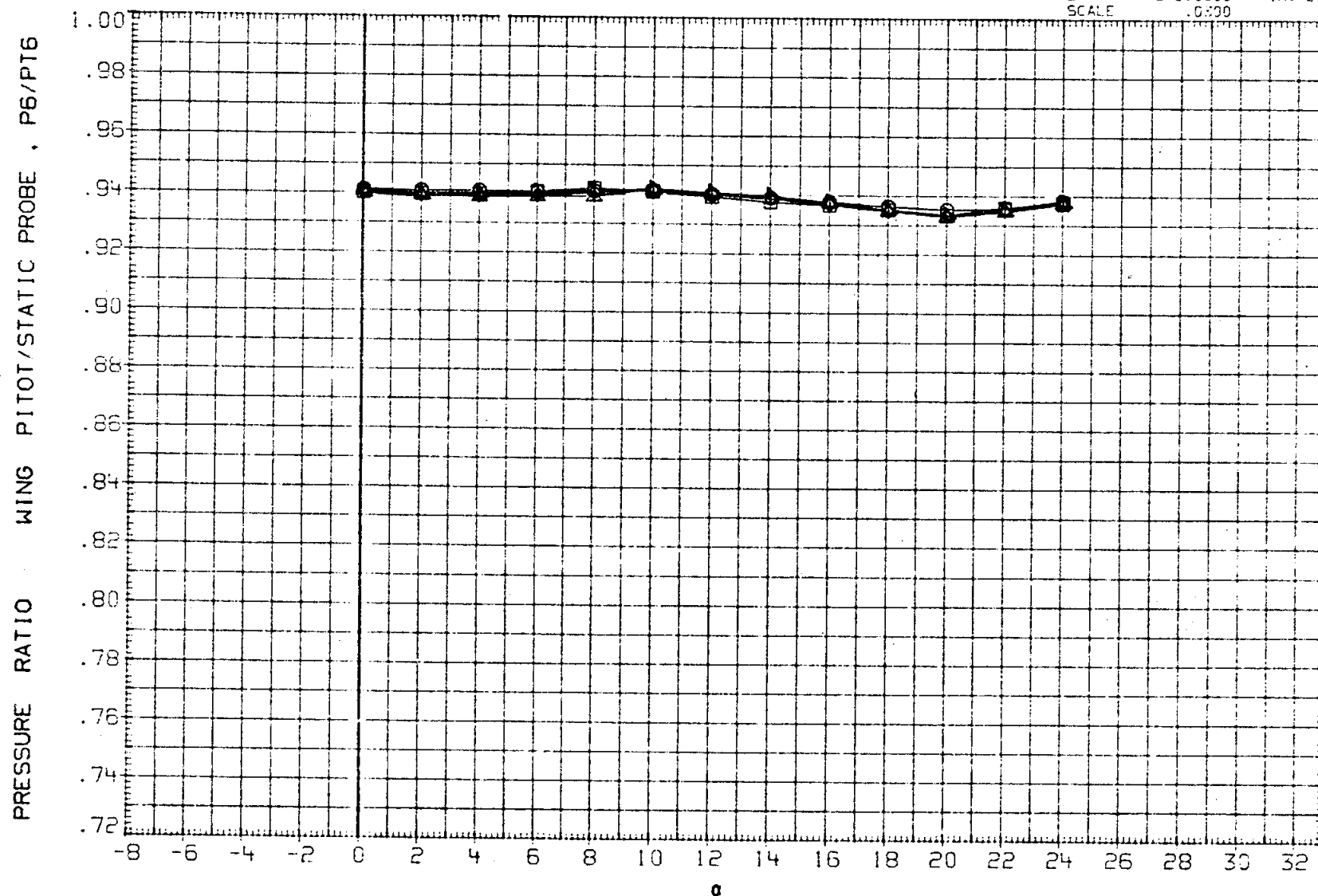


FIG. 34 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
 AT VARIOUS BETAS

(A) MACH = .30

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
GE7X45	○	ARC 11-97-87-094 OA161 ORBITER + PROBES	-5.000	15.000	.000	-7.170	SREF	2690.0000	50.FT.
GE7X46	□	ARC 11-97-87-094 OA161 ORBITER + PROBES	-2.000	15.000	.000	-7.170	LREF	474.8000	IN.
GE7X47	◇	ARC 11-97-87-094 OA161 ORBITER + PROBES	.000	15.000	.000	-7.170	BREF	936.5000	IN.
GE7X48	△	ARC 11-97-87-094 OA161 ORBITER + PROBES	2.000	15.000	.000	-7.170	XMRP	1076.6800	IN. XO
GE7X49	▽	ARC 11-97-87-094 OA161 ORBITER + PROBES	5.000	15.000	.000	-7.170	YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

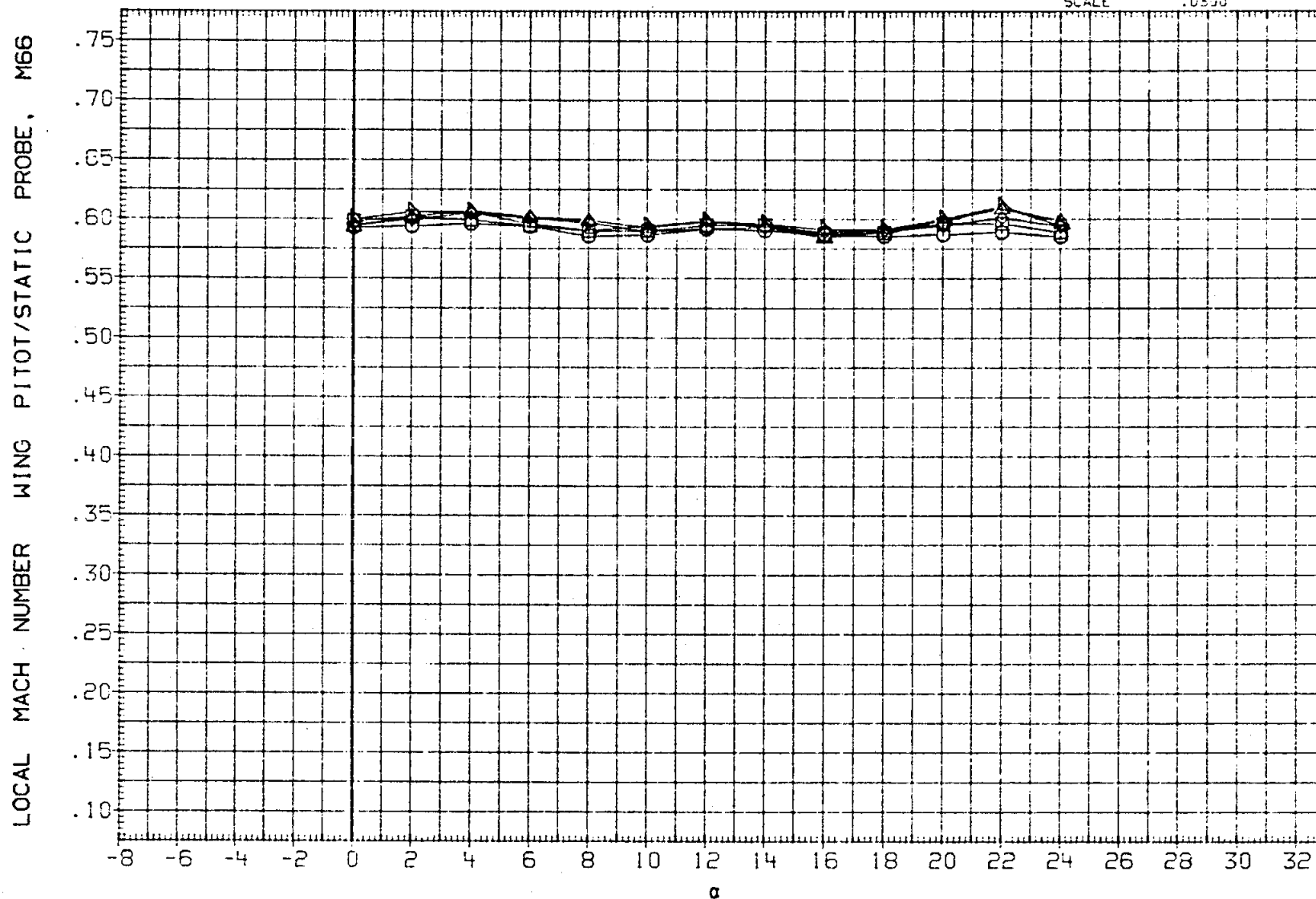


FIG. 34 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(B) MACH = .60

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

BOFLAP

REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION
GE7X4B	ARC 11-97-87-094 OA161 ORBITER + PROBES
GE7X4B	ARC 11-97-87-094 OA161 ORBITER + PROBES
GE7X47	ARC 11-97-87-094 OA161 ORBITER + PROBES
GE7X4B	ARC 11-97-87-094 OA161 ORBITER + PROBES
GE7X49	ARC 11-97-87-094 CA161 ORBITER + PROBES

BETA	ELEVON	AILRON	BOFLAP
-5.000	15.000	.000	-7.170
-2.000	15.000	.000	-7.170
.000	15.000	.000	-7.170
2.000	15.000	.000	-7.170
5.000	15.000	.000	-7.170

REFERENCE INFORMATION		
SREF	2690.0000	50. FT.
LREF	474.8000	IN.
BREF	936.6000	IN.
XMPP	1076.6800	IN. X0
YMPP	.0000	IN. Y0
ZMPP	375.0000	IN. Z0
SCALE	.0300	

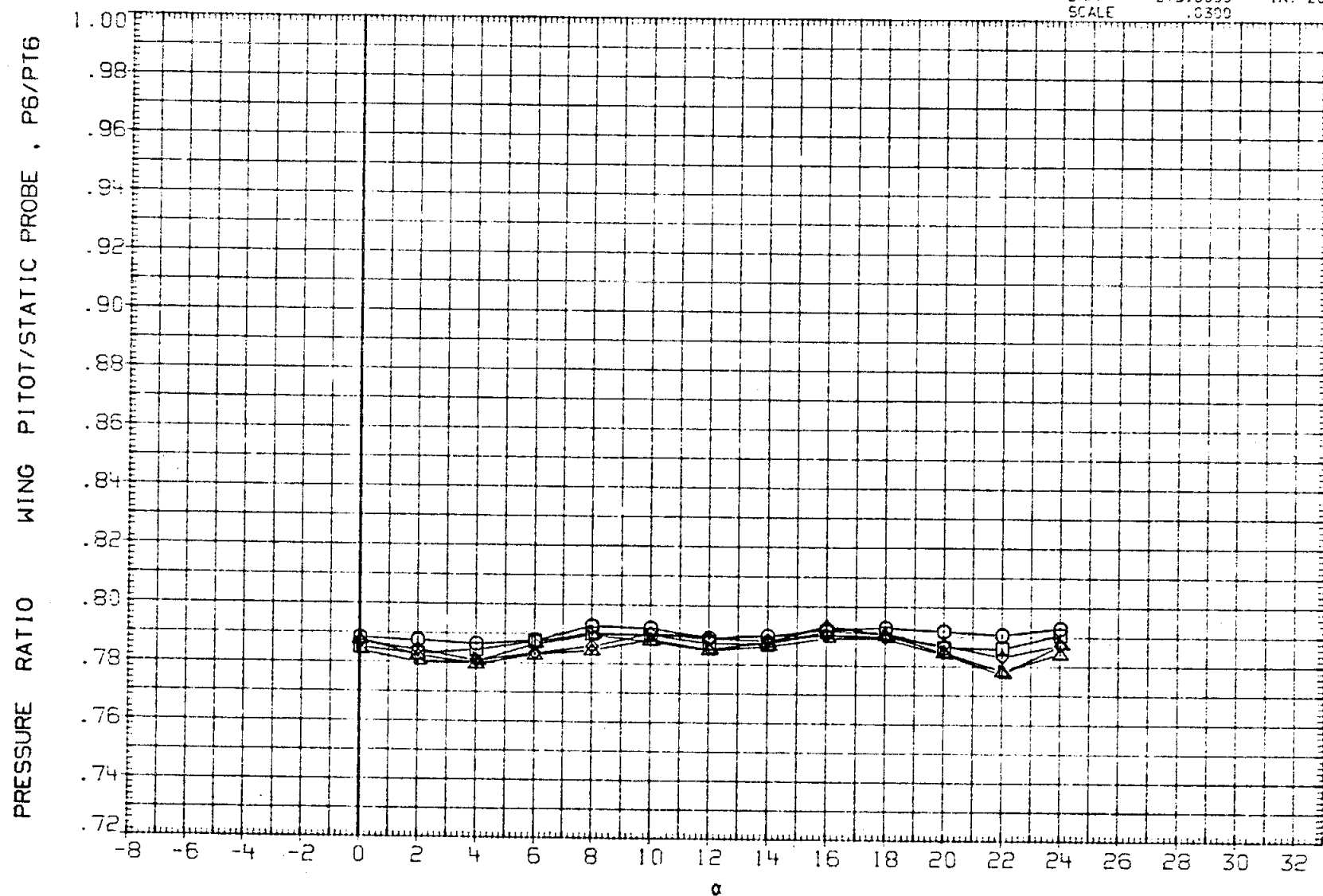


FIG. 34 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(B) MACH = .50



DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFL	REFERENCE INFORMATION		
GE7B+5	○	ARC 11-97-87-094 OA161 ORBITER + PROBES	-5.000	15.000	.000	-7.170	SREF	2690.0000	50.FT.
GE7B+6	□	ARC 11-97-87-094 OA161 ORBITER + PROBES	-2.000	15.000	.000	-7.170	LREF	474.8000	IN.
GE7B+7	◇	ARC 11-97-87-094 OA161 ORBITER + PROBES	.000	15.000	.000	-7.170	BREF	936.6800	IN.
GE7B+8	△	ARC 11-97-87-094 OA161 ORBITER + PROBES	2.000	15.000	.000	-7.170	XMRP	1076.6800	IN. XO
GE7B+9	▽	ARC 11-97-87-094 OA161 ORBITER + PROBES	5.000	15.000	.000	-7.170	YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

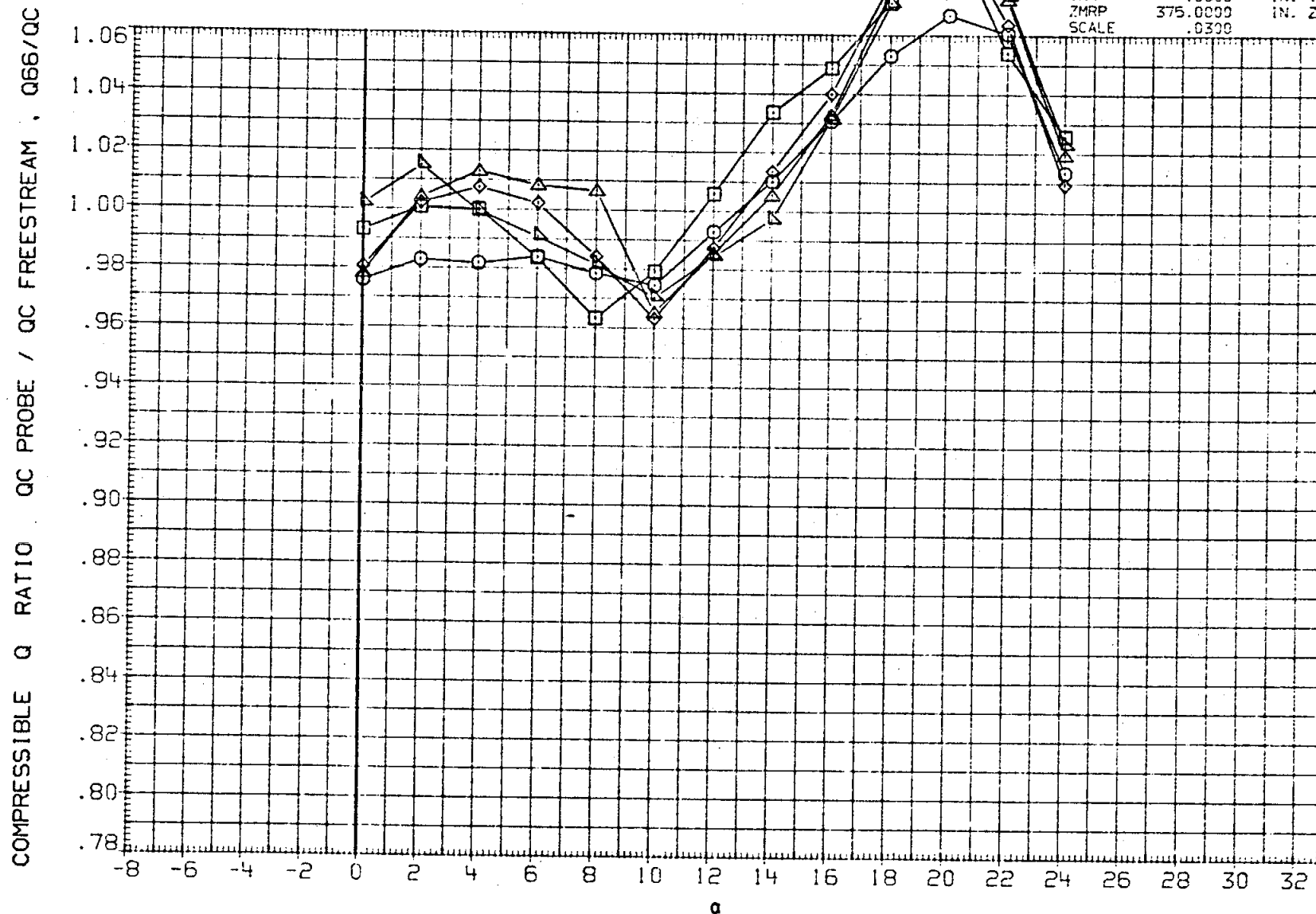


FIG. 34 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(A) MACH = .30

## DATA SET SYMBOL

## CONFIGURATION

GE7845 ○ ARC 11-97-87-094 OA161 ORBITER + PROBES  
 GE7846 □ ARC 11-97-87-094 OA161 ORBITER + PROBES  
 GE7847 ◇ ARC 11-97-87-094 OA161 ORBITER + PROBES  
 GE7848 △ ARC 11-97-87-094 OA161 ORBITER + PROBES  
 GE7849 ▲ ARC 11-97-87-094 OA161 ORBITER + PROBES

BETA	ELEVON	AILPON	BDCLAP
-5.000	15.000	.000	-7.170
-2.000	15.000	.000	-7.170
.000	15.000	.000	-7.170
2.000	15.000	.000	-7.170
5.000	15.000	.000	-7.170

## REFERENCE INFORMATION

SPEF	2690.0000	SC.FT.
LREF	474.8000	IN.
BREF	935.6800	IN.
YMPP	1076.6800	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0300	

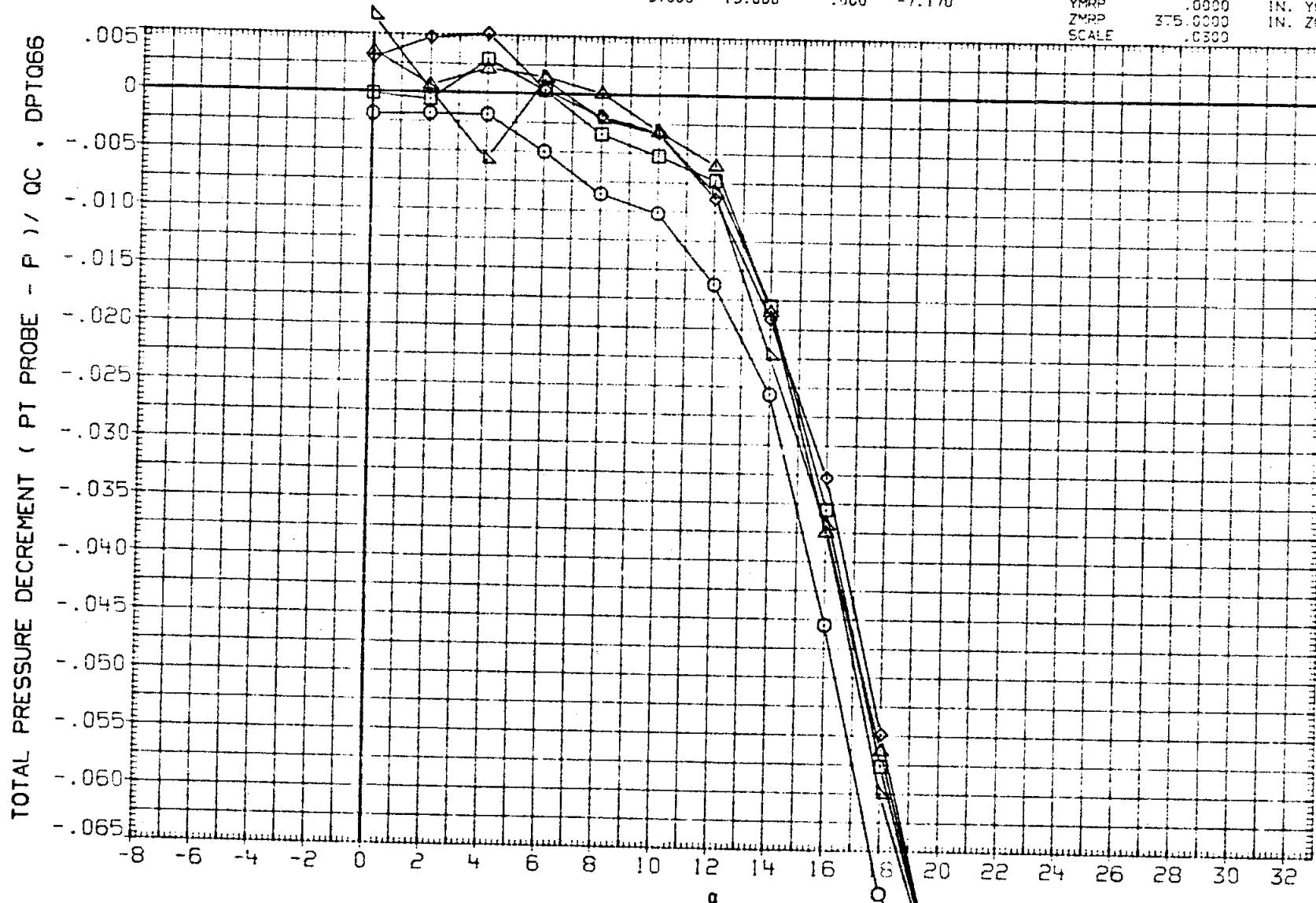


FIG. 34 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(A) MACH = .30

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
GE7B45	○	ARC 11-97-87-094 OA161 ORBITER + PROBES	-5.000	15.000	.000	-7.170	SREF	2690.0000	50. FT.
GE7B46	◇	ARC 11-97-87-094 OA161 ORBITER + PROBES	-2.000	15.000	.000	-7.170	LREF	474.8000	IN.
GE7B47	□	ARC 11-97-87-094 OA161 ORBITER + PROBES	.000	15.000	.000	-7.170	BREF	935.6800	IN.
GE7B48	△	ARC 11-97-87-094 OA161 ORBITER + PROBES	2.000	15.000	.000	-7.170	XMPP	1075.6800	IN. XO
GE7B49	▽	ARC 11-97-87-094 OA161 ORBITER + PROBES	5.000	15.000	.000	-7.170	YMPP	.0000	IN. YO
							ZMPP	375.0000	IN. ZO
							SCALE	.9300	

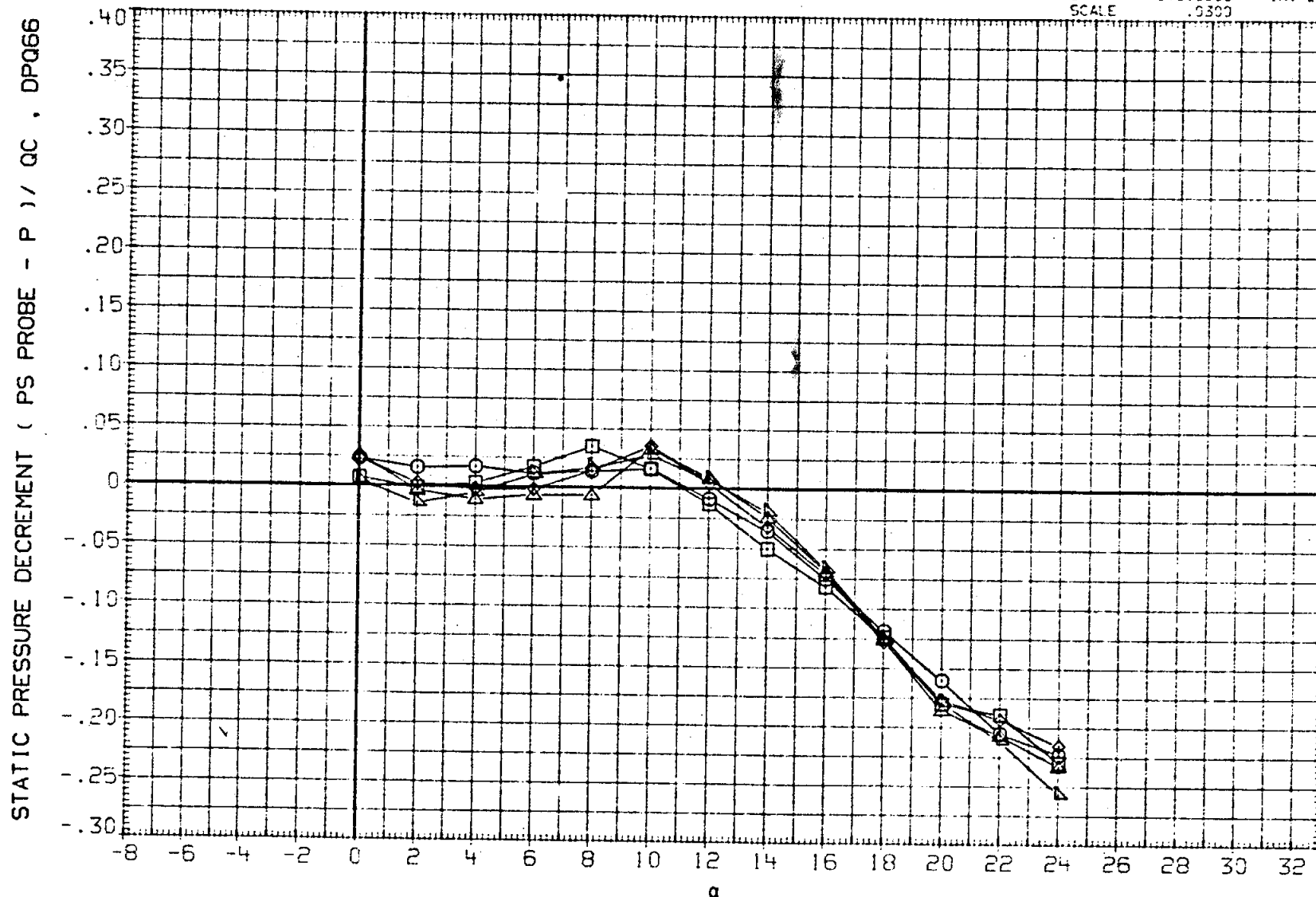


FIG. 34 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(A) MACH = .30

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
GETB+5	○	ARC 11-97-87-094 OA161 ORBITER + PROBES	-5.000	15.000	.000	-7.170	SREF	2690.0000	SQ. FT.
GETB+6	□	ARC 11-97-87-094 OA161 ORBITER + PROBES	-2.000	15.000	.000	-7.170	LREF	474.8000	IN.
GETB+7	◇	ARC 11-97-87-094 OA161 ORBITER + PROBES	.000	15.000	.000	-7.170	BREF	935.5600	IN.
GETB+8	△	ARC 11-97-87-094 OA161 ORBITER + PROBES	2.000	15.000	.000	-7.170	XMRP	1076.6800	IN. XO
GETB+9	▽	ARC 11-97-87-094 OA161 ORBITER + PROBES	5.000	15.000	.000	-7.170	YMRP	.0000	IN. YO
							ZMRP	375.0000	IN. ZO
							SCALE	.0300	

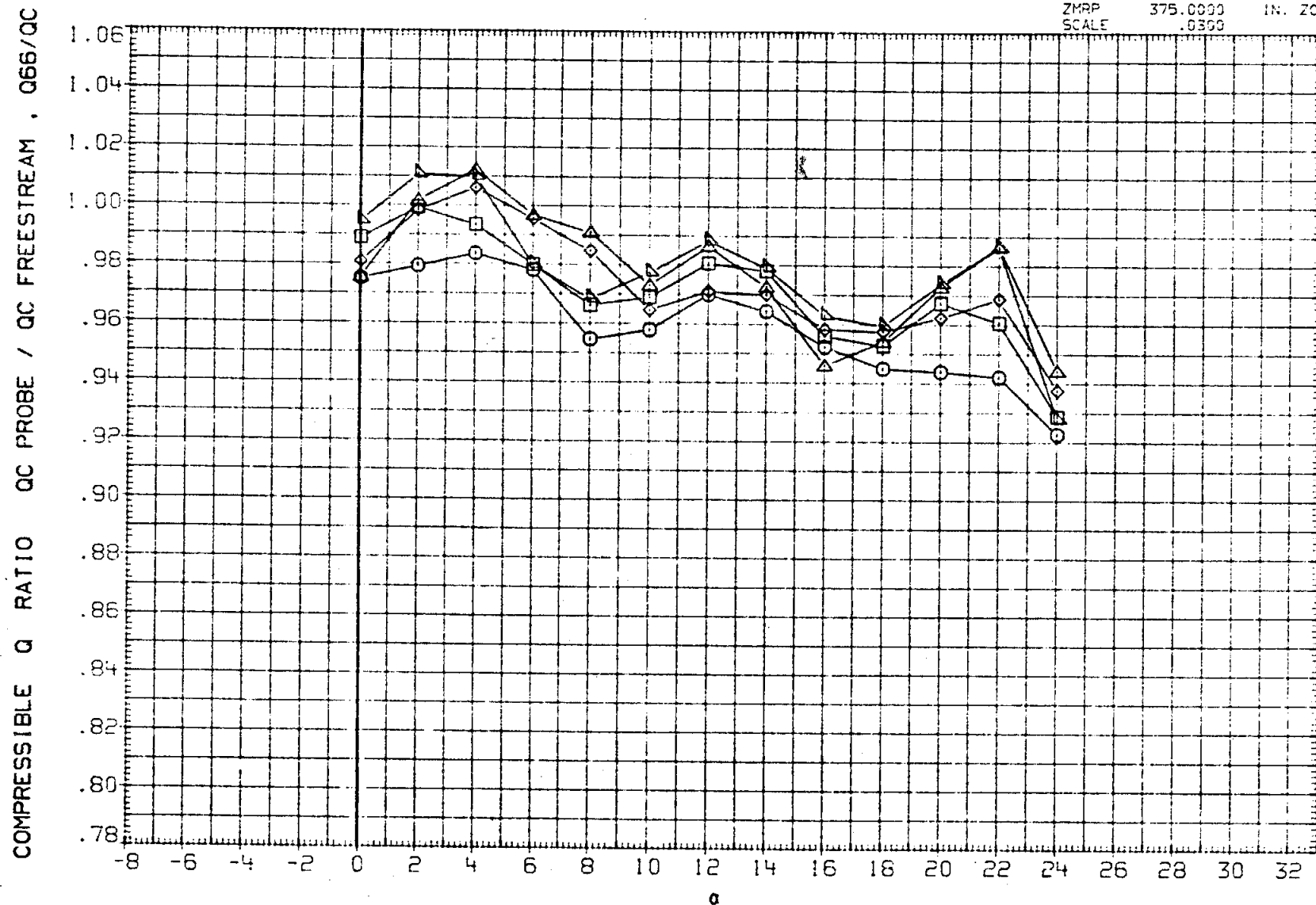


FIG. 34 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(B) MACH = .60

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
GE7845	○	ARC 11-97-87-094 0A161 ORBITER + PROBES	-5.000	15.000	.000	-7.170	SREF	2690.0000	SQ.FT.
GE7846	□	ARC 11-97-87-094 0A161 ORBITER + PROBES	-2.000	15.000	.000	-7.170	LREF	474.8000	IN.
GE7847	◇	ARC 11-97-87-094 0A161 ORBITER + PROBES	.000	15.000	.000	-7.170	BREF	936.6800	IN.
GE7848	△	ARC 11-97-87-094 0A161 ORBITER + PROBES	2.000	15.000	.000	-7.170	XMRP	1076.6800	IN. X0
GE7849	▽	ARC 11-97-87-094 0A161 ORBITER + PROBES	5.000	15.000	.000	-7.170	YMRP	.0000	IN. Y0
							ZMRP	375.0000	IN. Z0
							SCALE	.0300	

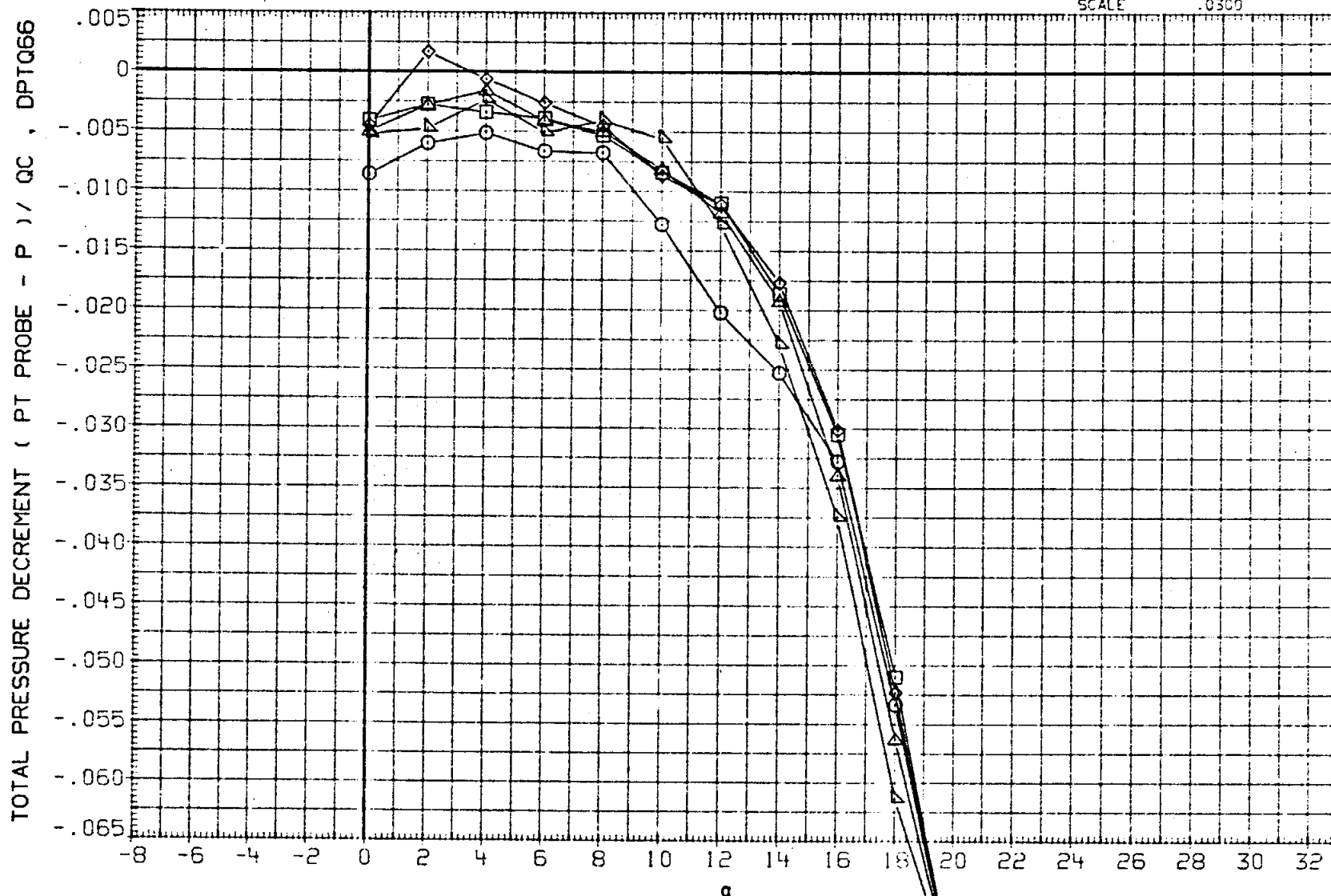


FIG. 34 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(B) MACH = .60

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AIL-ON

BOFLAP

REFERENCE INFORMATION

GE7B45 ○ ARC 11-97-87-094 0A161 ORBITER + PROBES  
 GE7B46 □ ARC 11-97-87-094 0A161 ORBITER + PROBES  
 GE7B47 ◇ ARC 11-97-87-094 0A161 ORBITER + PROBES  
 GE7B48 △ ARC 11-97-87-094 0A161 ORBITER + PROBES  
 GE7B49 ▽ ARC 11-97-87-094 0A161 ORBITER + PROBES

-5.000

15.000

.000

-7.170

SREF

2690.0000

50. FT.

-2.000

15.000

.000

-7.170

LREF

474.8000

IN.

.000

15.000

.000

-7.170

BREF

936.6800

IN.

2.000

15.000

.000

-7.170

XMRP

1076.6800

IN. Y0

5.000

15.000

.000

-7.170

YMRP

.0000

IN. Y0

ZMRP

375.0000

IN. Z0

SCALE

.0300

STATIC PRESSURE DECREMENT ( PS PROBE - P ) / QC , DPQ56

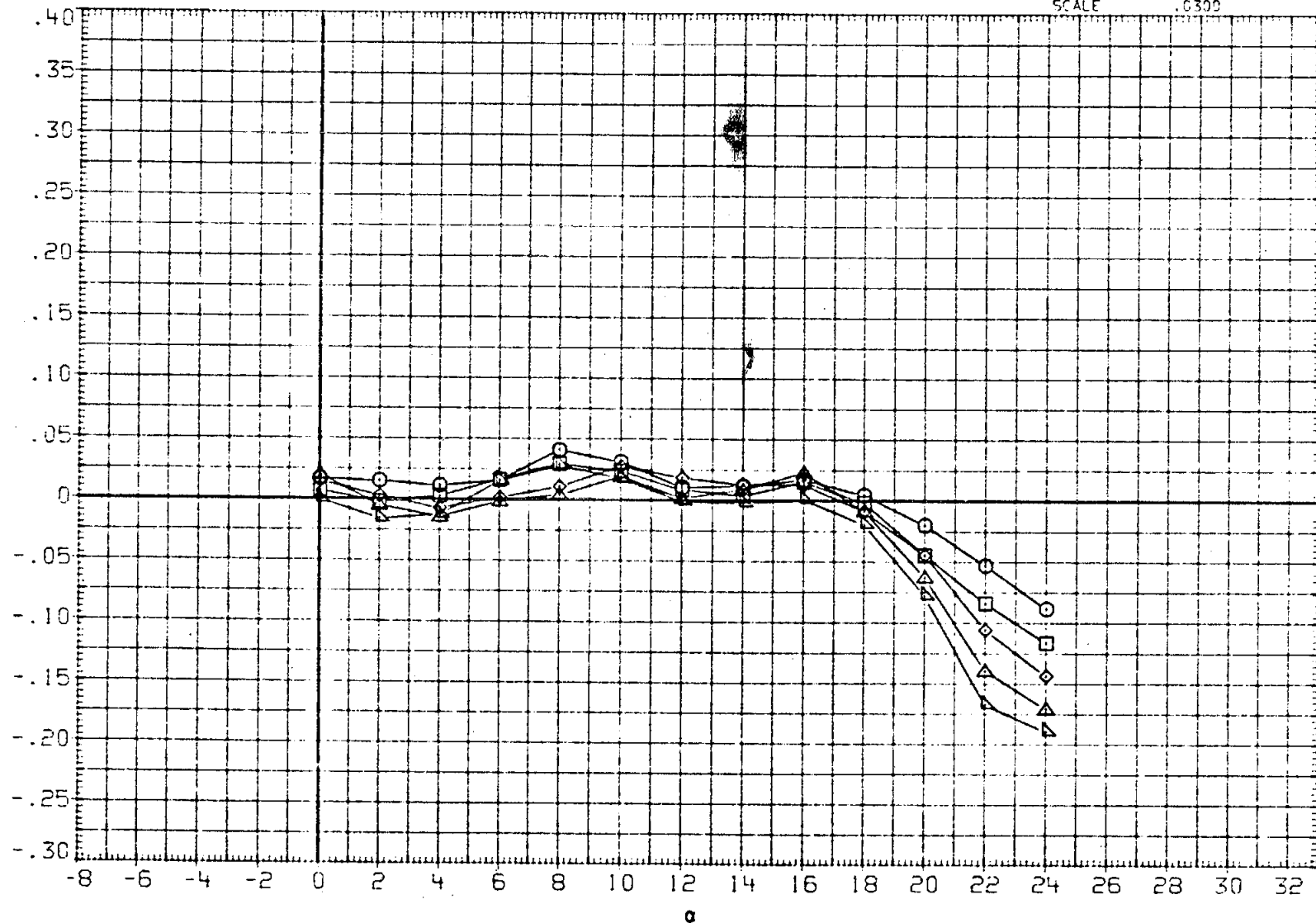


FIG. 34 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(B) MACH = .60

PAGE 704

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
GE7X38	□	ARC 11-97-87-094 OA161 ORBITER + PROBES	-8.000	.000	.000	-7.170	SREF	2690.0000	SQ. FT.
GE7X39	◇	ARC 11-97-87-094 OA161 ORBITER + PROBES	-5.000	.000	.000	-7.170	LREF	474.8000	IN.
GE7X40	◇	ARC 11-97-87-094 OA161 ORBITER + PROBES	-2.000	.000	.000	-7.170	BREF	936.6800	IN.
GE7X41	△	ARC 11-97-87-094 OA161 ORBITER + PROBES	.000	.000	.000	-7.170	XMRP	1076.6800	IN. XO
GE7X43	△	ARC 11-97-87-094 OA161 ORBITER + PROBES	5.000	.000	.000	-7.170	YMRP	.0000	IN. YO
GE7X44	D	ARC 11-97-87-094 OA161 ORBITER + PROBES	8.000	.000	.000	-7.170	ZMRP	375.0000	IN. ZO
							SCALE	.0000	

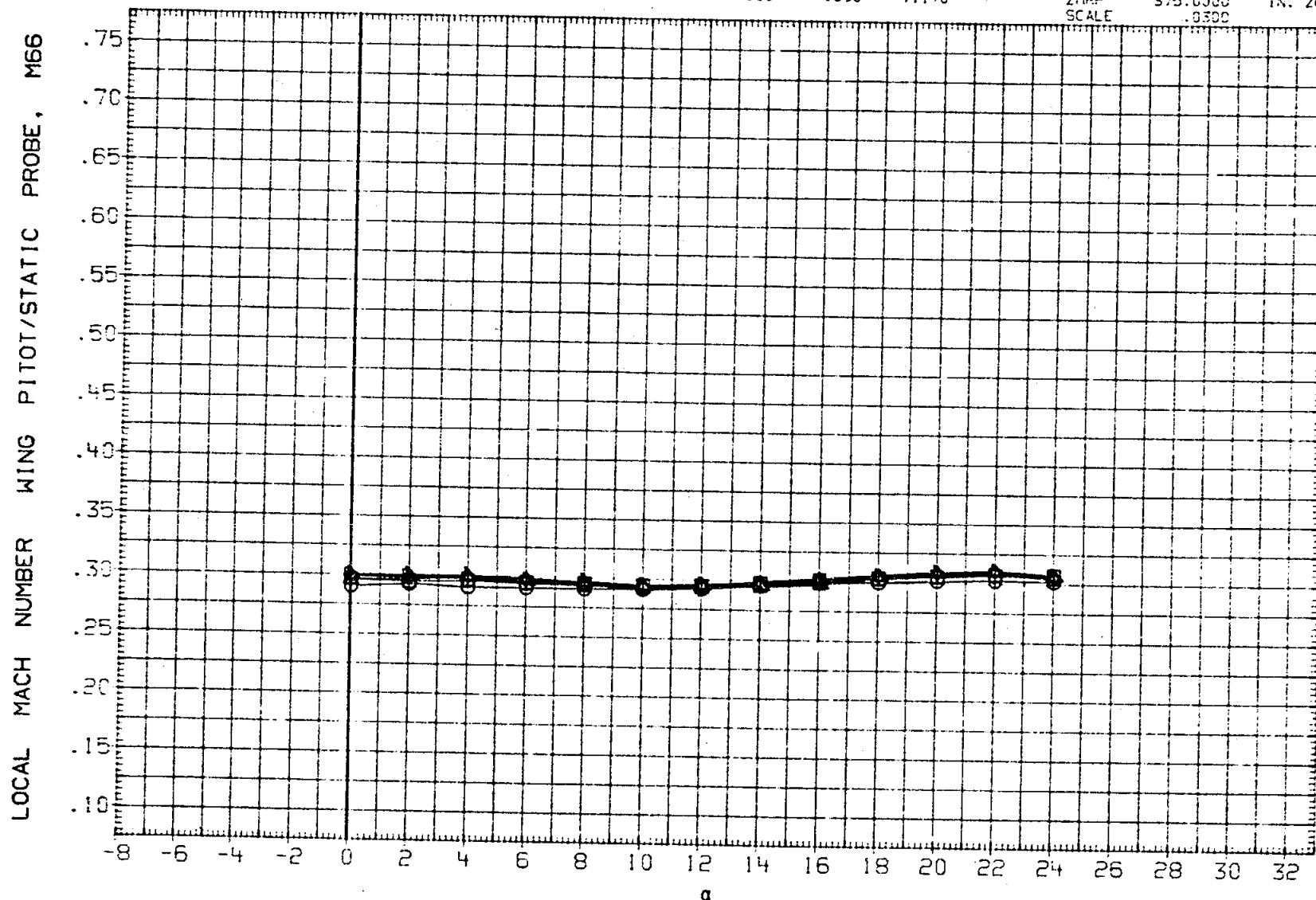


FIG. 34 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(A) MACH = .30

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

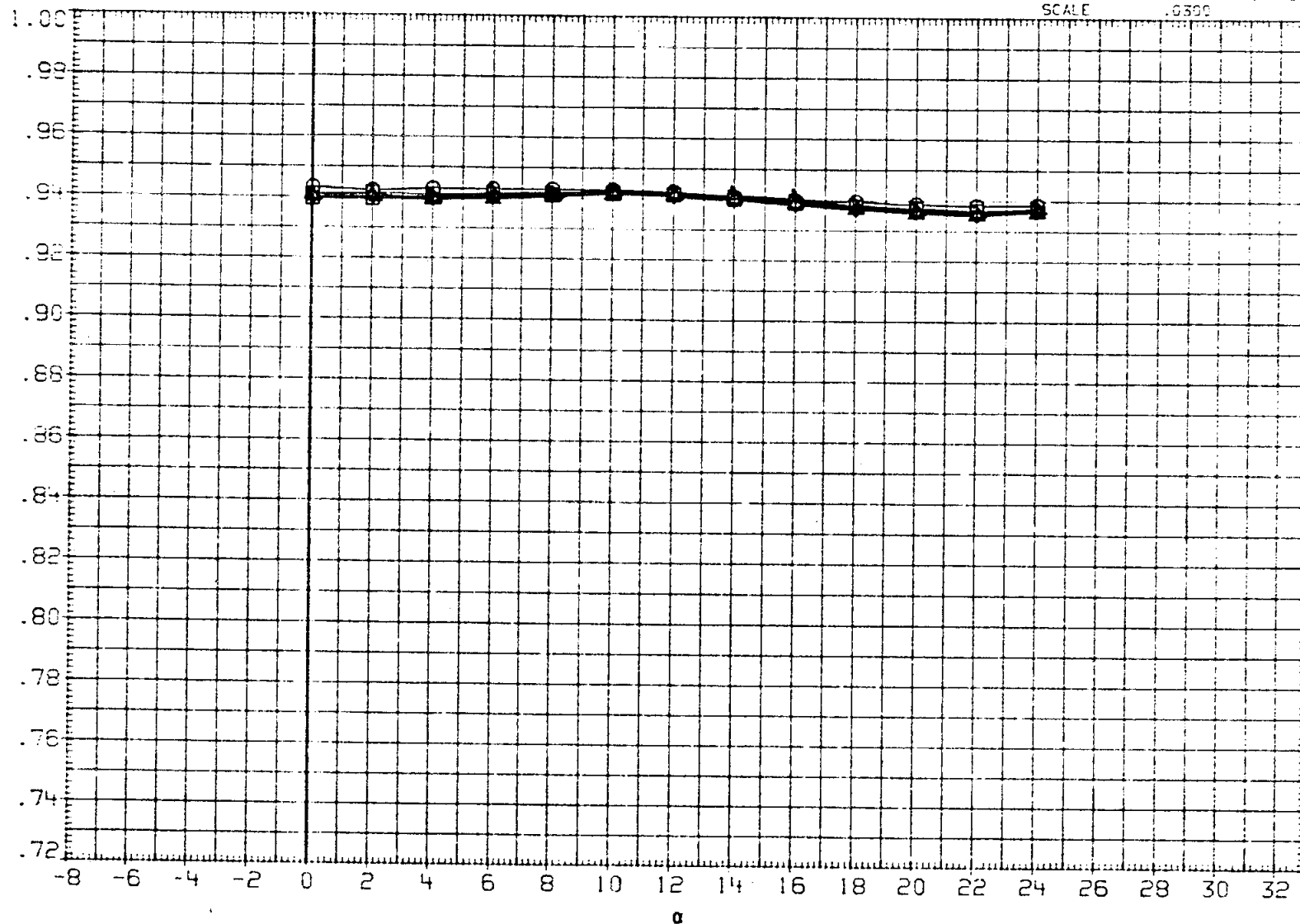
AILTRON

BDFLAP

REFERENCE INFORMATION

GETV38  
ORBITER  
ORBITER  
ORBITER  
ORBITER  
ORBITER  
ORBITERO  
O  
O  
O  
O  
O  
OARC 11-97-87-094 OA161 ORBITER \* PROBES  
ARC 11-97-87-094 OA161 ORBITER \* PROBES  
ARC 11-97-87-094 OA161 ORBITER \* PROBES  
ARC 11-97-87-094 OA161 ORBITER \* PROBES  
ARC 11-97-87-094 OA161 ORBITER \* PROBES  
ARC 11-97-87-094 OA161 ORBITER \* PROBES  
ARC 11-97-87-094 OA161 ORBITER \* PROBES-8.000 .000 .000 -7.170  
-5.000 .000 .000 -7.170  
-2.000 .000 .000 -7.170  
.000 .000 .000 -7.170  
5.000 .000 .000 -7.170  
8.000 .000 .000 -7.170SREF 2585.0000 SQ. FT.  
LREF 474.8000 IN.  
PREF 935.6900 IN.  
XMRP 1076.6800 IN. XO  
YMRP .0000 IN. YO  
ZMRP 375.0000 IN. ZO  
SCALE .0500

PRESSURE RATIO WING PITOT/STATIC PROBE, P5/P15

FIG. 34 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(A) MACH = .30



DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
GE7X38	ARC 11-97-87-094 OA161 ORBITER + PROBES	-8.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
GE7X39	ARC 11-97-87-094 OA161 ORBITER + PROBES	-5.000	.000	.000	-7.170	LREF	474.8000	IN.
GE7X40	ARC 11-97-87-094 OA161 ORBITER + PROBES	-2.000	.000	.000	-7.170	BREF	935.6800	IN.
GE7X41	ARC 11-97-87-094 OA161 ORBITER + PROBES	.000	.000	.000	-7.170	XMRP	1076.6800	IN. X0
GE7X43	ARC 11-97-87-094 OA161 ORBITER + PROBES	5.000	.000	.000	-7.170	YMRP	.0000	IN. Y0
GE7X44	ARC 11-97-87-094 OA161 ORBITER + PROBES	8.000	.000	.000	-7.170	ZMRP	375.0000	IN. Z0
						SCALE	.0300	

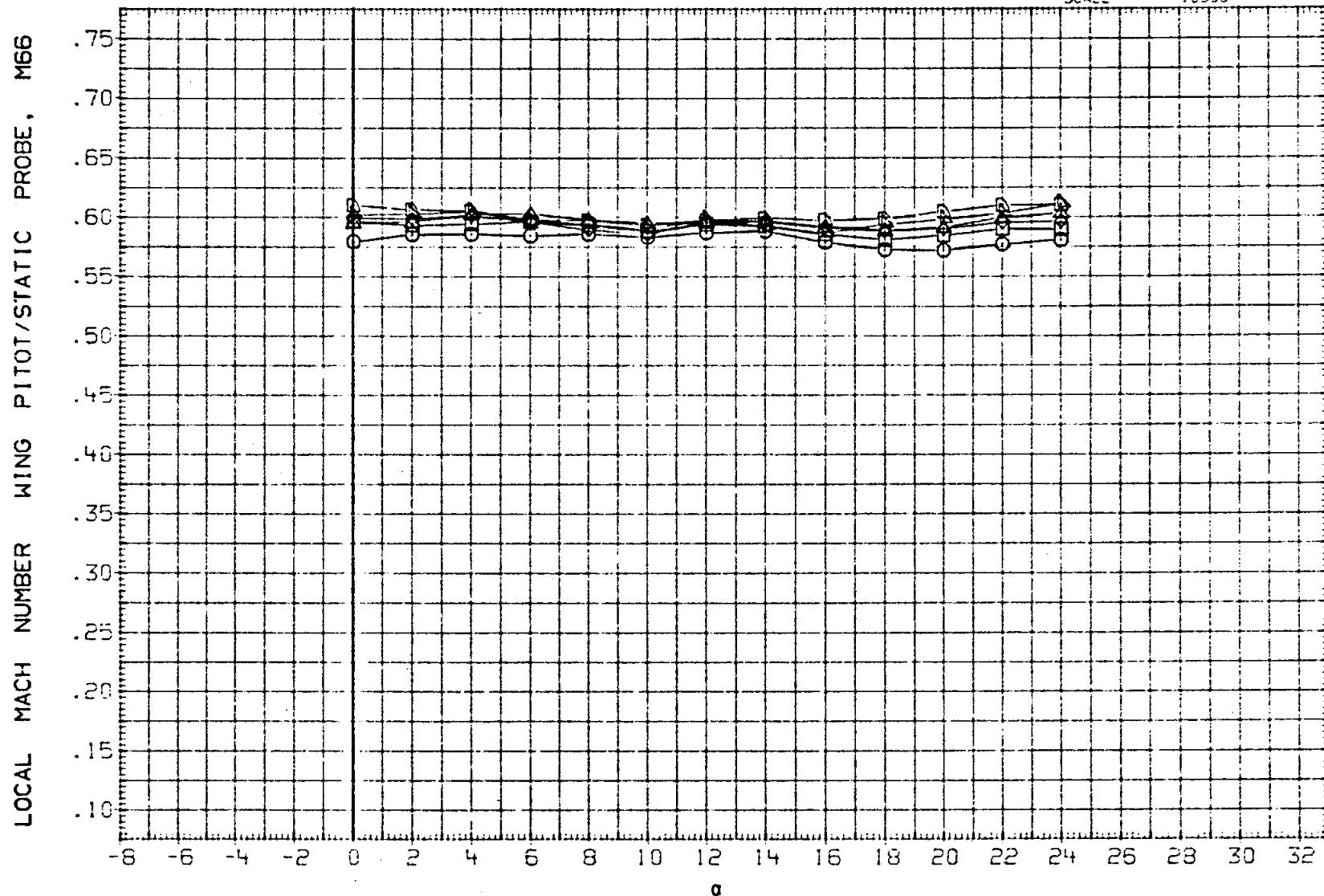


FIG. 34 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(B) MACH = .60

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
GE7X38	ARC 11-97-87-094 OA161 ORBITER + PROBES	-8.000	.000	.000	-7.170	SREF	2890.0000	50. FT.
GE7X39	ARC 11-97-87-094 OA161 ORBITER + PROBES	-5.000	.000	.000	-7.170	LREF	474.0000	IN.
GE7X40	ARC 11-97-87-094 OA161 ORBITER + PROBES	-2.000	.000	.000	-7.170	BREF	935.0000	IN.
GE7X41	ARC 11-97-87-094 OA161 ORBITER + PROBES	.000	.000	.000	-7.170	YMFP	1075.0000	IN. X0
GE7X43	ARC 11-97-87-094 OA161 ORBITER + PROBES	5.000	.000	.000	-7.170	YMFP	.0000	IN. Y0
GE7X44	ARC 11-97-87-094 OA161 ORBITER + PROBES	8.000	.000	.000	-7.170	ZMFP	375.0000	IN. Z0
						SCALE	.0300	

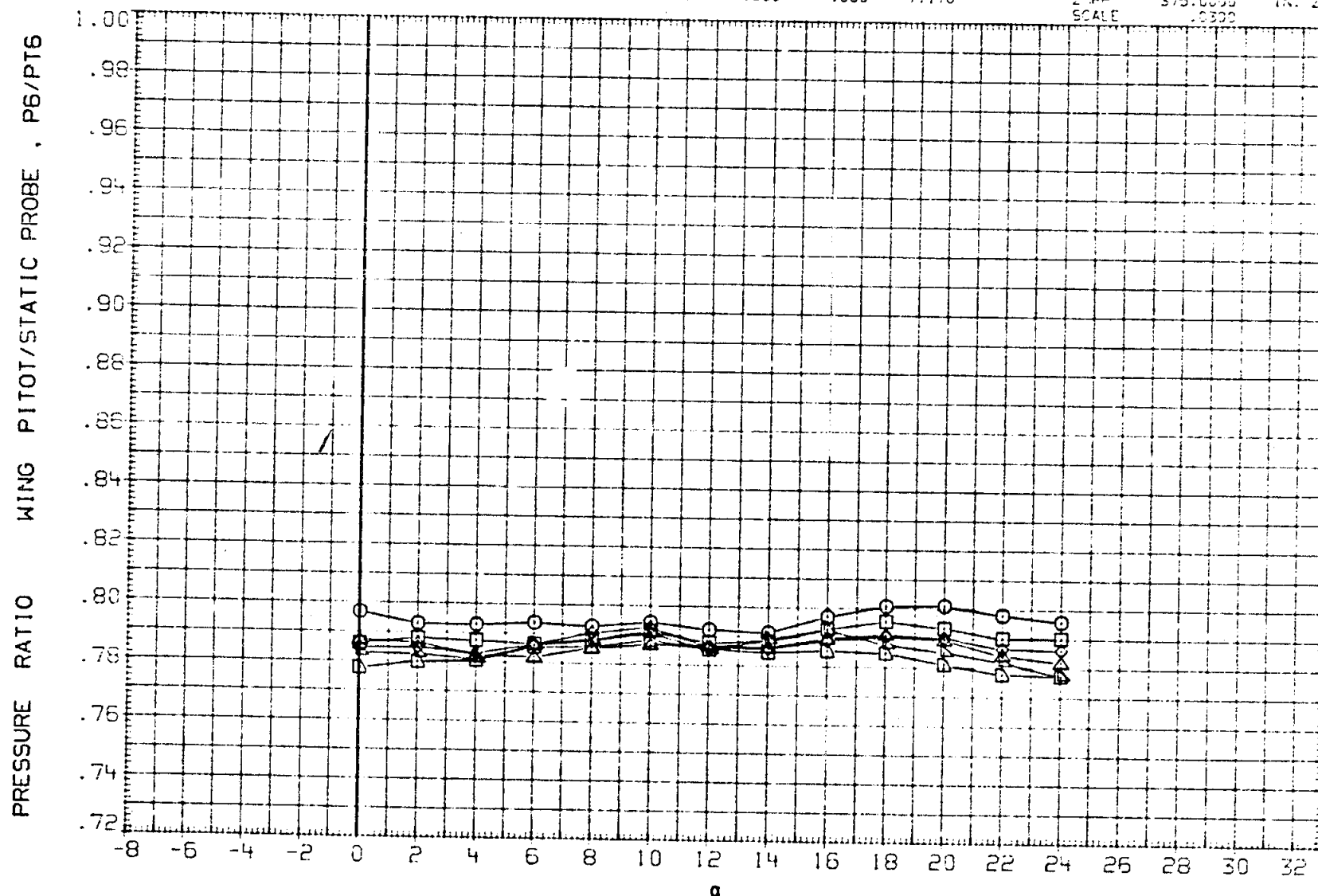


FIG. 34 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
 AT VARIOUS BETAS  
 (B) MACH = .60

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION		
GE7B38	□	ARC 11-97-87-094 OA161 ORBITER • PROBES	-8.000	.000	.000	-7.170	SREF	2690.0000	SQ.FT.
GE7B39	◇	ARC 11-97-87-094 OA161 ORBITER • PROBES	-5.000	.000	.000	-7.170	LREF	474.8000	IN.
GE7B40	◇	ARC 11-97-87-094 OA161 ORBITER • PROBES	-2.000	.000	.000	-7.170	BREF	936.6800	IN.
GE7B41	△	ARC 11-97-87-094 OA161 ORBITER • PROBES	.000	.000	.000	-7.170	XMRP	1076.5800	IN. XO
GE7B42	△	ARC 11-97-87-094 OA161 ORBITER • PROBES	5.000	.000	.000	-7.170	YMRP	.0000	IN. YO
GE7B44	◇	ARC 11-97-87-094 OA161 ORBITER • PROBES	8.000	.000	.000	-7.170	ZMRP	375.0000	IN. ZO
							SCALE	.0500	

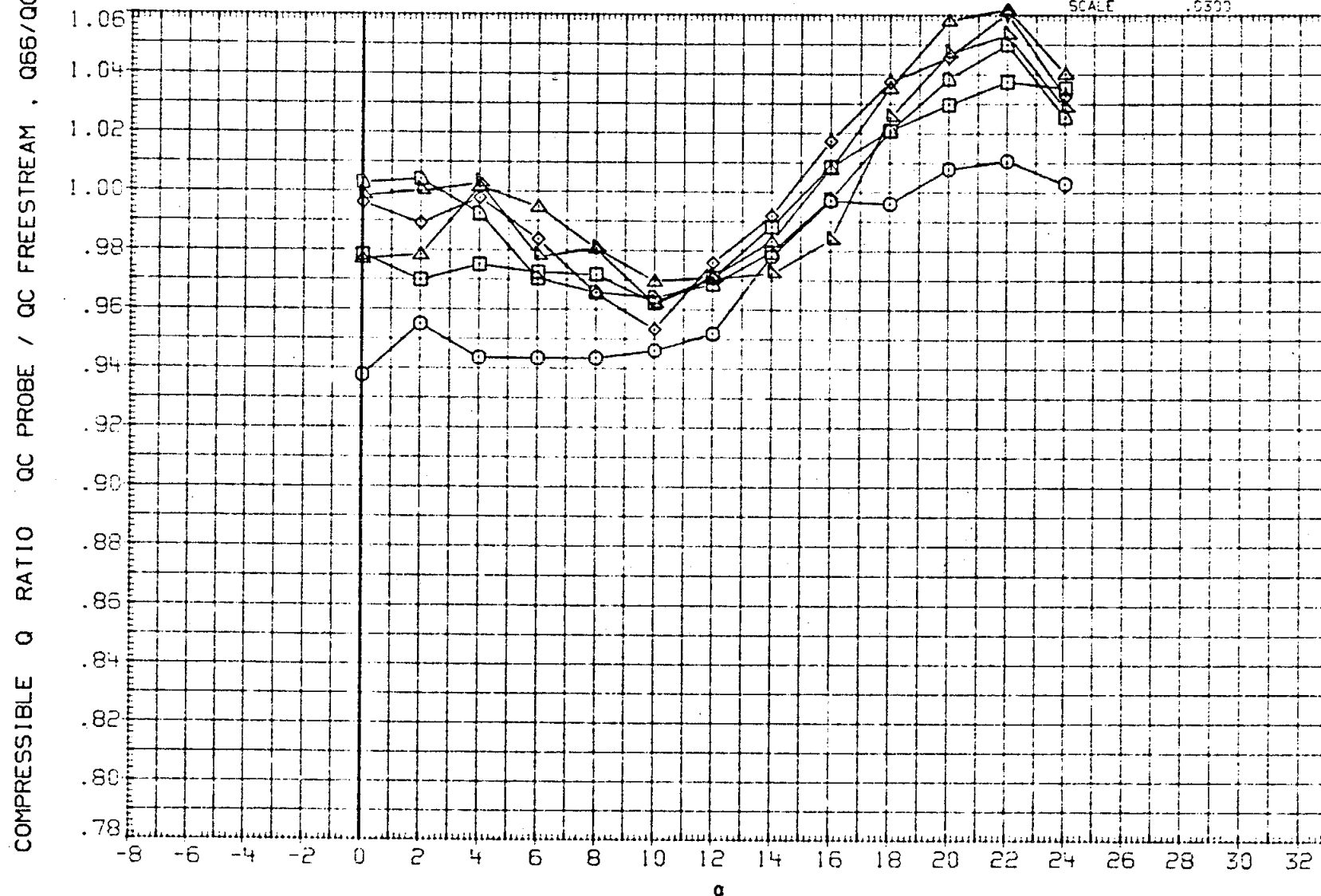


FIG. 34 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(A) MACH = .30

DATA SET SYMBOL	CONFIGURATION	BETA	ELEVON	AILERON	BOFLAP	REFERENCE INFORMATION		
GE7838	ARC 11-97-87-09+ CA161 ORBITER + PROBES	-8.000	.000	.000	-7.170	SREF	2590.0000	SO.FT.
GE7839	ARC 11-97-87-09+ CA161 ORBITER + PROBES	-5.000	.000	.000	-7.170	LREF	474.8000	IN.
GE7840	ARC 11-97-87-09+ CA161 ORBITER + PROBES	-2.000	.000	.000	-7.170	BREF	935.6000	IN.
GE7841	ARC 11-97-87-09+ CA161 ORBITER + PROBES	.000	.000	.000	-7.170	XMPP	1075.6900	IN. XO
GE7843	ARC 11-97-87-09+ CA161 ORBITER + PROBES	5.000	.000	.000	-7.170	YMPP	.0000	IN. YO
GE7844	ARC 11-97-87-09+ CA161 ORBITER + PROBES	8.000	.000	.000	-7.170	ZMPP	375.0000	IN. ZO
						SCALE	.0000	

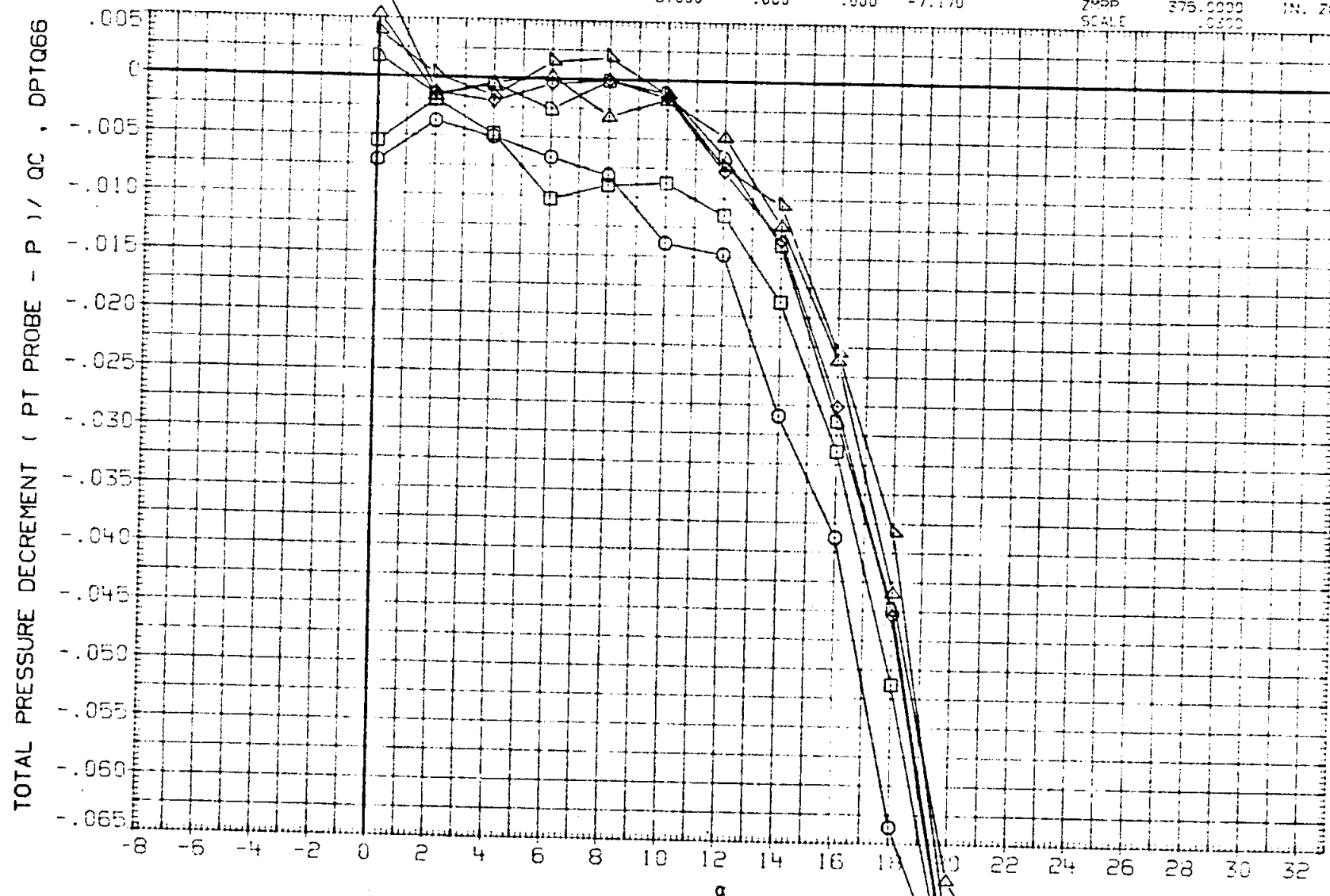


FIG. 34 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
 AT VARIOUS BETAS  
 (A) MACH = .30

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILERON	BDFLAP	REFERENCE INFORMATION		
Q17838	○	ARC 11-97-87-094 OA161 ORBITER + PROBES	-8.000	.000	.000	-7.170	SREF	2690.0000	50.FT.
Q17839	□	ARC 11-97-87-094 OA161 ORBITER + PROBES	-5.000	.000	.000	-7.170	LREF	474.8000	IN.
Q17840	◇	ARC 11-97-87-094 OA161 ORBITER + PROBES	-2.000	.000	.000	-7.170	BREF	936.6800	IN.
Q17841	△	ARC 11-97-87-094 OA161 ORBITER + PROBES	.000	.000	.000	-7.170	XMRD	1076.6800	IN. XO
Q17843	▽	ARC 11-97-87-094 OA161 ORBITER + PROBES	5.000	.000	.100	-7.170	YMRD	.0000	IN. YO
Q17844	◻	ARC 11-97-87-094 OA161 ORBITER + PROBES	8.000	.000	.100	-7.170	ZMRD	375.0000	IN. ZO
							SCALE	.0000	

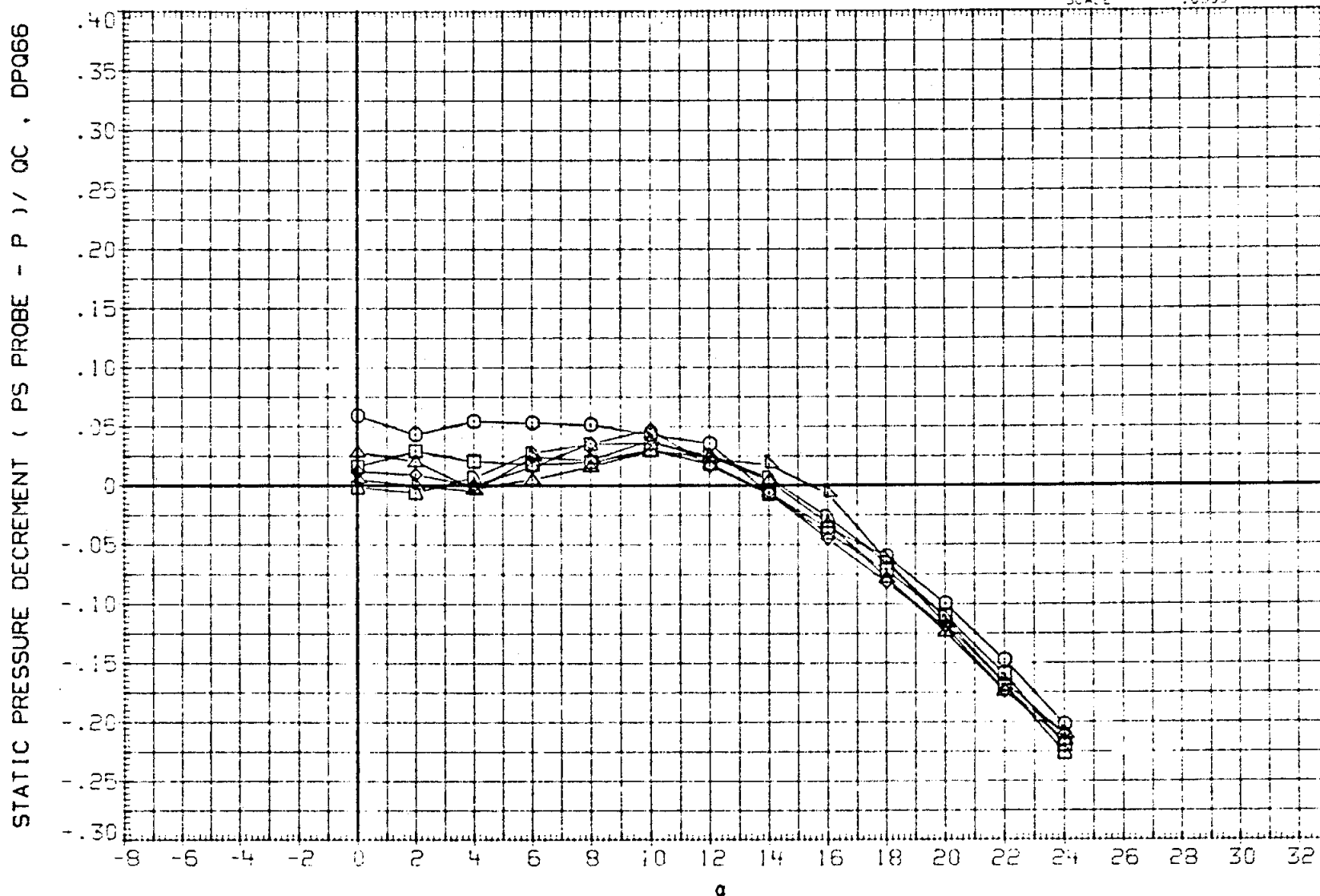


FIG. 34 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

DATA SET	SYMBOL	CONFIGURATION	BETA	ELEVON	AILEON	BUFLAP	REFERENCE INFORMATION		
GETB38	○	ARC 11-97-87-094 OA161 ORBITER + PROBES	-8.000	.000	.000	-7.170	SREF	2690.0000	50. FT.
GETB39	□	ARC 11-97-87-094 OA161 ORBITER + PROBES	-5.000	.000	.000	-7.170	LREF	474.8200	IN.
GETB40	△	ARC 11-97-87-094 OA161 ORBITER + PROBES	-2.000	.000	.000	-7.170	BREF	935.6800	IN.
GETB41	◇	ARC 11-97-87-094 OA161 ORBITER + PROBES	.000	.000	.000	-7.170	YMPP	1076.6800	IN. YO
GETB42	×	ARC 11-97-87-094 OA161 ORBITER + PROBES	5.000	.000	.000	-7.170	YNRP	.0000	IN. YO
GETB44	+	ARC 11-97-87-094 OA161 ORBITER + PROBES	8.000	.000	.000	-7.170	ZNRP	375.0000	IN. ZO
							SCALE	.0000	

COMPRESSIBLE Q RATIO QC PROBE / QC FREESTREAM , Q66/QC

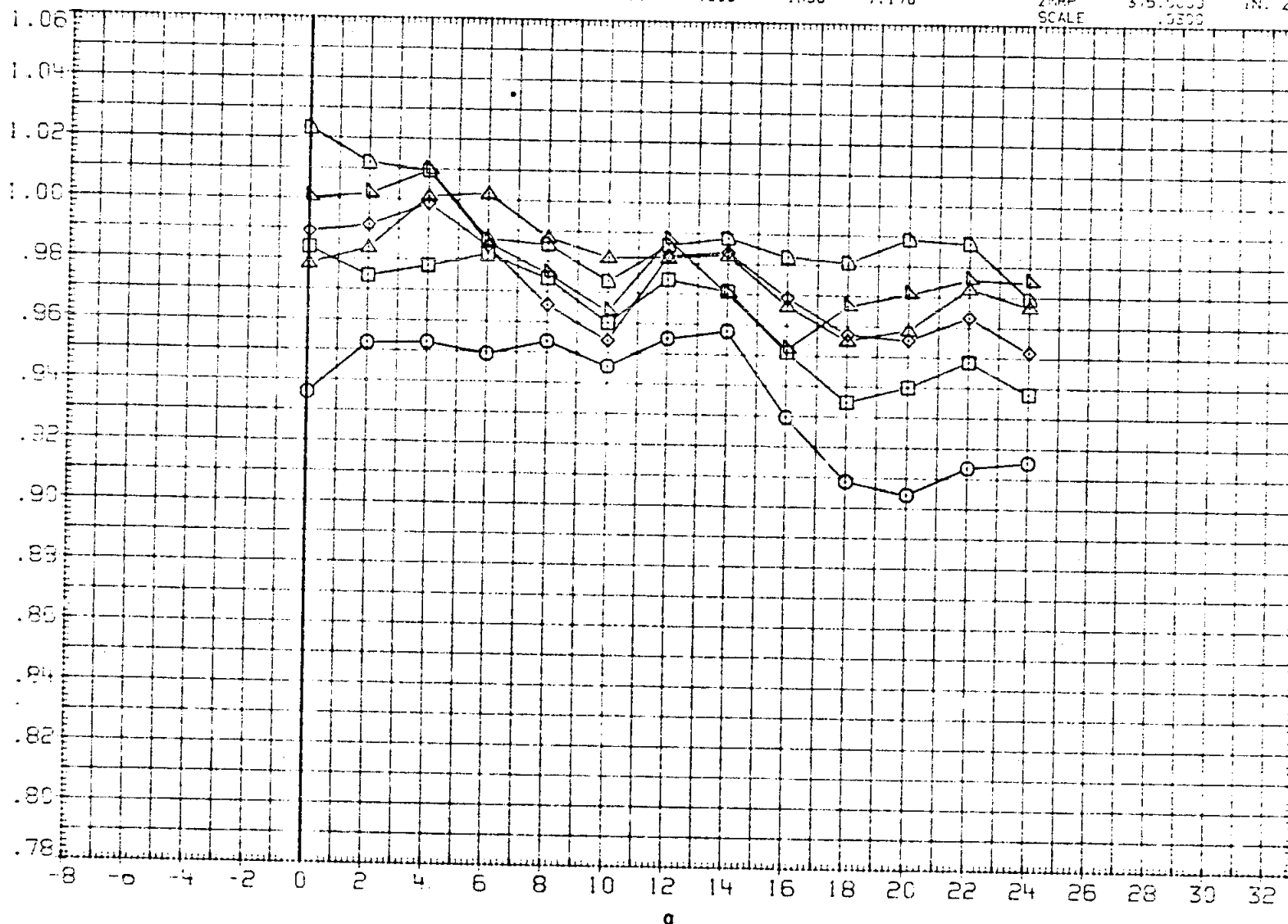


FIG. 34 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS  
(B) MACH = .60

DATA SET SYMBOL

CONFIGURATION

DATA SET SYMBOL	CONFIGURATION
GETB38	ARC 11-97-87-094 0A161 ORBITER + PROBES
GETB39	ARC 11-97-87-094 0A161 ORBITER + PROBES
GETB40	ARC 11-97-87-094 0A161 ORBITER + PROBES
GETB41	ARC 11-97-87-094 0A161 ORBITER + PROBES
GETB42	ARC 11-97-87-094 0A161 ORBITER + PROBES
GETB43	ARC 11-97-87-094 0A161 ORBITER + PROBES
GETB44	ARC 11-97-87-094 0A161 ORBITER + PROBES

BETA	ELEVON	AILRON	BDFLAP
-8.000	.000	.000	-7.170
-5.000	.000	.000	-7.170
-2.000	.000	.000	-7.170
.000	.000	.000	-7.170
5.000	.000	.000	-7.170
8.000	.000	.000	-7.170

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	474.9000	IN.
BREF	936.6000	IN.
XMPP	1076.6000	IN. XO
YMPP	.0000	IN. YO
ZMPP	375.0000	IN. ZO
SCALE	.0000	

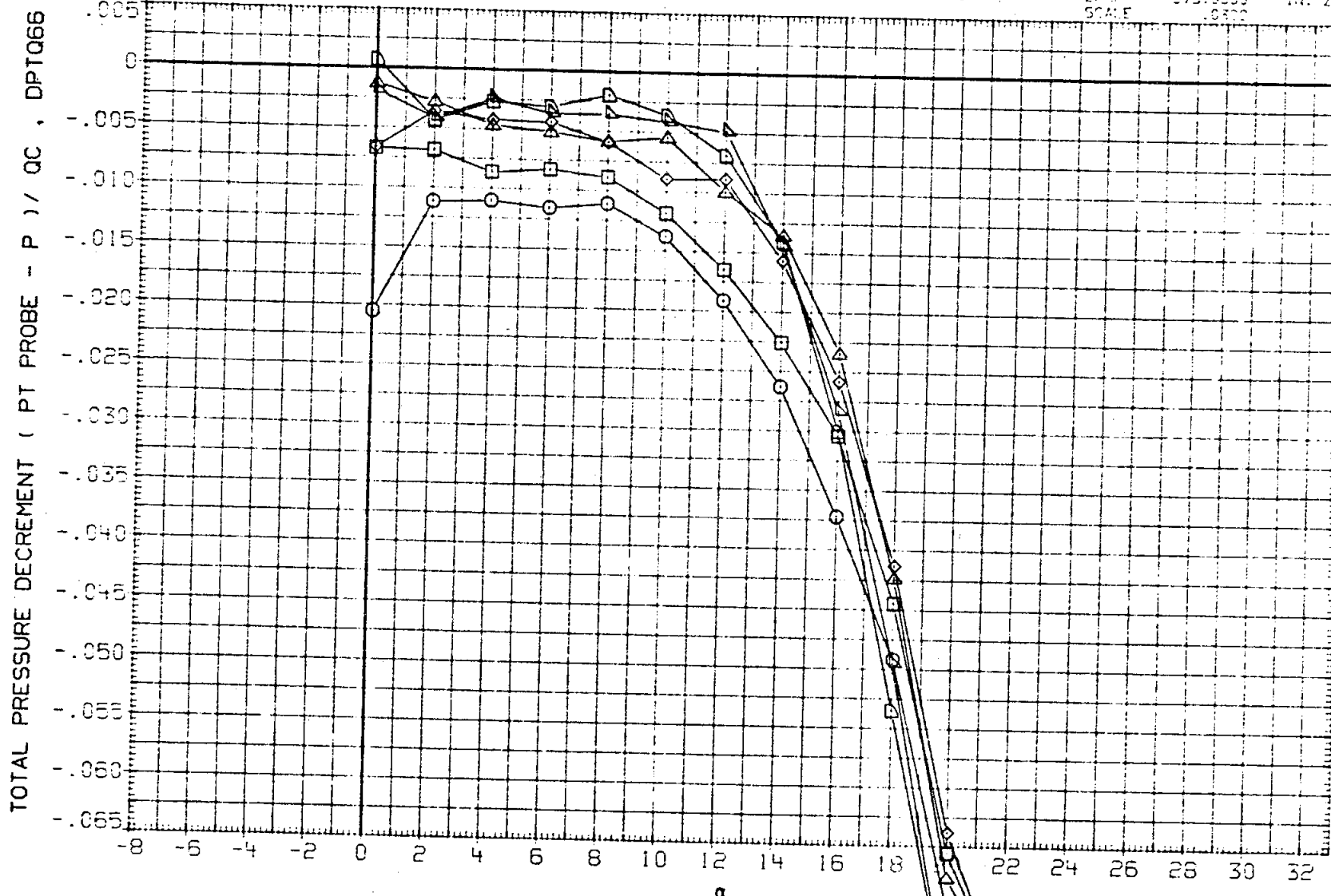


FIG. 34 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(B) MACH = .60

DATA SET SYMBOL

CONFIGURATION

BETA

ELEVON

AILRON

SDFLAP

REFERENCE INFORMATION

Q11836 ○ ARC 11-97-87-094 OA161 ORBITER + PROBES  
 Q11838 □ ARC 11-97-87-094 OA161 ORBITER + PROBES  
 Q11840 ◇ ARC 11-97-87-094 OA161 ORBITER + PROBES  
 Q11842 △ ARC 11-97-87-094 OA161 ORBITER + PROBES  
 Q11843 ▽ ARC 11-97-87-094 OA161 ORBITER + PROBES  
 Q11844 ▢ ARC 11-97-87-094 OA161 ORBITER + PROBES

-8.000  
 -5.000  
 -2.000  
 .000  
 5.000  
 8.000

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-7.70  
 -7.70  
 -7.70  
 -7.70  
 -7.70  
 -7.170

SREF 1690.0000 IN. X0  
 LREF 474.8000 IN.  
 SREF 936.6800 IN.  
 YMRP 1076.6800 IN. Y0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE .0300

STATIC PRESSURE DECREMENT ( PS PROBE - P ) / QC , DPQ66

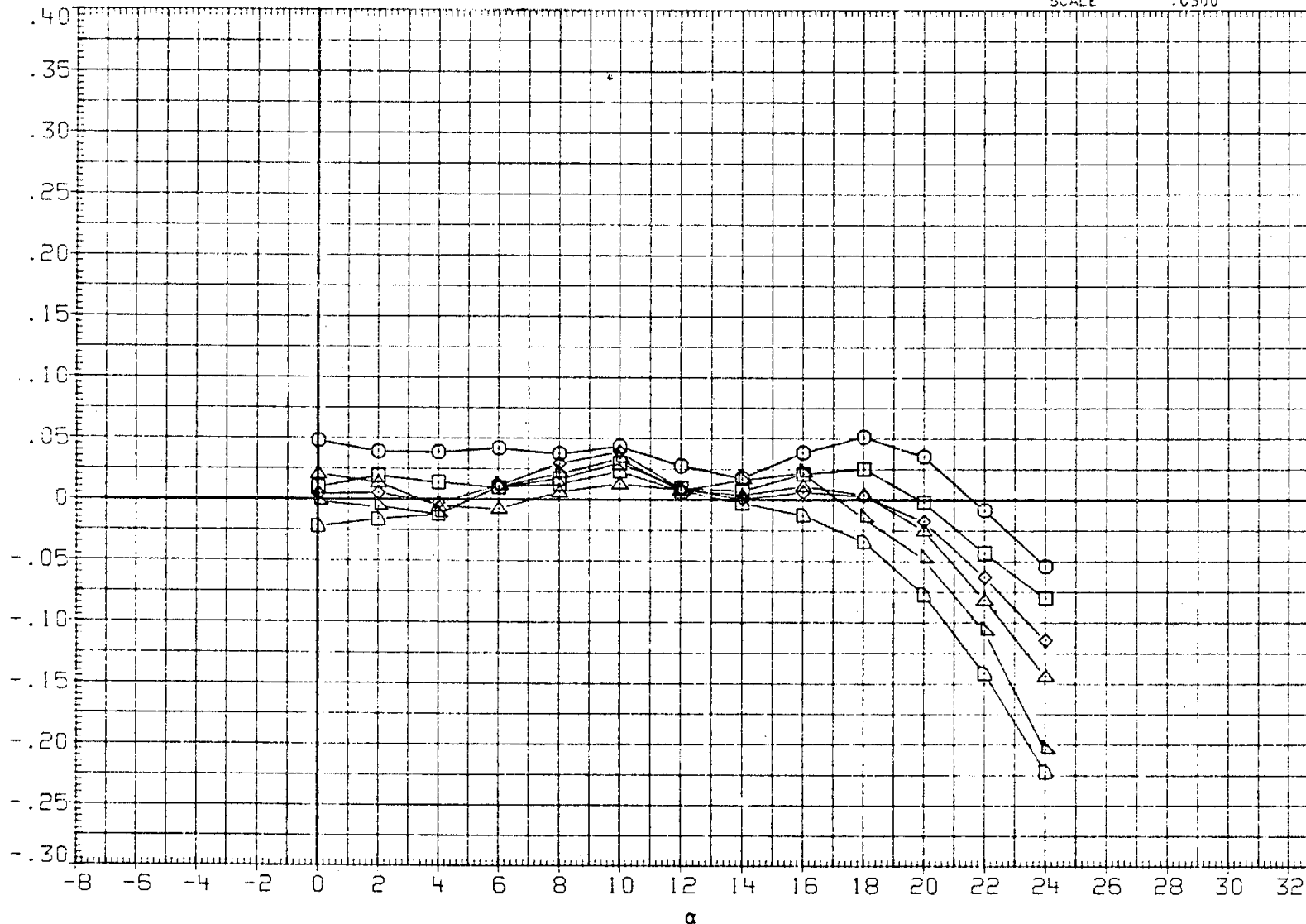


FIG. 34 WING PITOT/STATIC PROBE CHARACTERISTICS VERSUS ALPHA  
AT VARIOUS BETAS

(B) MACH = .60

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